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Different Paths of Inupiat Men and Women in the Wage Economy

Introduction

This *Review* examines the response of the North Slope Inupiat to the employment opportunities created through oil development. These jobs resulted not so much from direct oil field activities at Prudhoe Bay as from the formation of the North Slope Borough government in 1972. The borough transformed oil property tax revenues into local jobs adapted to contemporary Inupiat life styles.

The North Slope Borough government encompasses eight Inupiat villages, the Prudhoe Bay oil complex, and other major potential energy resources (Figure 1). Borough revenues grew from less than a million dollars in FY1973 to about $57 million in 1979.[1] The borough also launched a $511 million capital improvements program (CIP) to improve housing, educational facilities, roads, utilities, and sanitation on the North Slope. The CIP was designed to raise the standard of public facilities available to North Slope Inupiat to the level enjoyed by urban Alaskans, while at the same time providing employment for the Inupiat population.

Maximum local hire and the avoidance of union influence was a central consideration in borough construction contracting and long-term economic planning. Contractors hired local labor, and these employees were placed directly on the borough payroll. The borough was willing to absorb substantial cost overruns that partly resulted from the use of local labor rather than an experienced outside work force. "I wouldn't say the cost increase was caused by mismanagement on the part of [the construction firm building borough housing]," stated borough Mayor Eben Hopson in 1976, "but by the borough's policy of hiring local labor, which is to aid full employ-

[1] Gerald A. McBeath, *North Slope Borough Government and Policymaking* (Fairbanks: University of Alaska, Institute of Social and Economic Research, 1981); North Slope Borough Budget Document, FY 1979-1980.

This study is based primarily on a household survey conducted in 1977 by the Institute of Social and Economic Research (ISER) in cooperation with the North Slope Borough. The survey, for the most part, was conducted by trained Inupiat interviewers. The sample consisted of 290 Inupiat adults from Barrow and five major North Slope villages. Interviewers requested such information as the types of jobs the person held during the 1976-77 year, the person's subsistence activities that same year, education, and other background characteristics. The survey represents over 59 percent of North Slope Inupiat households and slightly over 20 percent of the North Slope Inupiat adult population in the communities surveyed.

Prior to the survey, anthropologist Rosita Worl, who was a two-year resident of Barrow, conducted lengthy semi-structured interviews on employment and subsistence with thirty North Slope Inupiat residents selected to represent different types of work adaptations. Results of the interviews suggested survey topics and provided qualitative information useful in interpreting survey results.

For a more detailed discussion of research methods and limitations as well as issues involved in measuring unemployment and labor force participation in the wage economy for rural Alaska, contact: Librarian, ISER, 707 A Street, Suite 206, Anchorage, Alaska 99501 (278-4621), and request appendices A, B, and C of ISER Report No. 50. These present, respectively, a discussion of methods used, issues involved in measuring labor force participation, and supplementary tables used in analyzing labor force participation.

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FEATURE

Judith Kleinfeld — Different Paths of Inupiat Men and Women in the Wage Economy: The North Slope Experience

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ment."[2] By 1979, the borough employed about 800 workers in government operations, education, and construction.[3] Such a workforce is substantial in a region with a village population of somewhat over 4,000, of which almost half are children.[4]

Organization of Report and Summary of Findings

The first section of this report examines the general effects of new job opportunities on the North Slope Borough's Inupiat population. It emphasizes the high level of Inupiat employment that occurred through the borough, as opposed to the oil industry. Through its local hire program, the North Slope Borough helped to raise cash income without increasing income inequity among the Inupiat population. The job opportunities created through the borough also avoided a potential crisis: how to absorb into the labor force the large population of Inupiat youth which was beginning to reach maturity in the 1970s.

The second section of this study examines the different responses of North Slope Inupiat men and women to job opportunities. Inupiat women surged into the labor force, continuing a historical process of increasing female labor force participation. Despite cultural differences, the labor force participation rate of Inupiat women, particularly young women, is similar to the national rate of female labor force participation. The majority of Inupiat women hold white collar jobs and their occupational structure generally resembles that of women nationally.

In comparison to national patterns, Inupiat men are adapting in culturally different ways to the wage economy. Their rates of labor force participation do not appear to have increased substantially, if at all, since the 1960s. Across all age groups, Inupiat male labor force participation rates in the wage economy are substantially lower than national norms. Inupiat men, however, are also active in the subsistence economy, and the young men appear to participate in major subsistence activities as much as the older generation. The occupational structure of Inupiat men also diverges from the national structure for males. The majority hold blue collar jobs, particularly in construction, which provide high wages and

[2]Quoted in Ray Brown, "The North Slope Borough: An Arctic Struggle," *The Anchorage Times*, October 17, 1976, B-7.

[3]*North Slope Borough, Alaska*, General Information and Economic Factors, Spring 1979. This estimate reflects budgeted positions and includes the North Slope Borough School District, which accounts for 358 employees.

[4]*Ibid.*; Jack Kruse, Judith Kleinfeld, and Robert Travis, *Energy Development and the North Slope Inupiat: A Quantitative Analysis of Social and Economic Change* (Fairbanks: University of Alaska, 1980), Table 3-1. Population figures tend to be unreliable and generally range between 4,000 and 5,000, not including military and industrial populations.

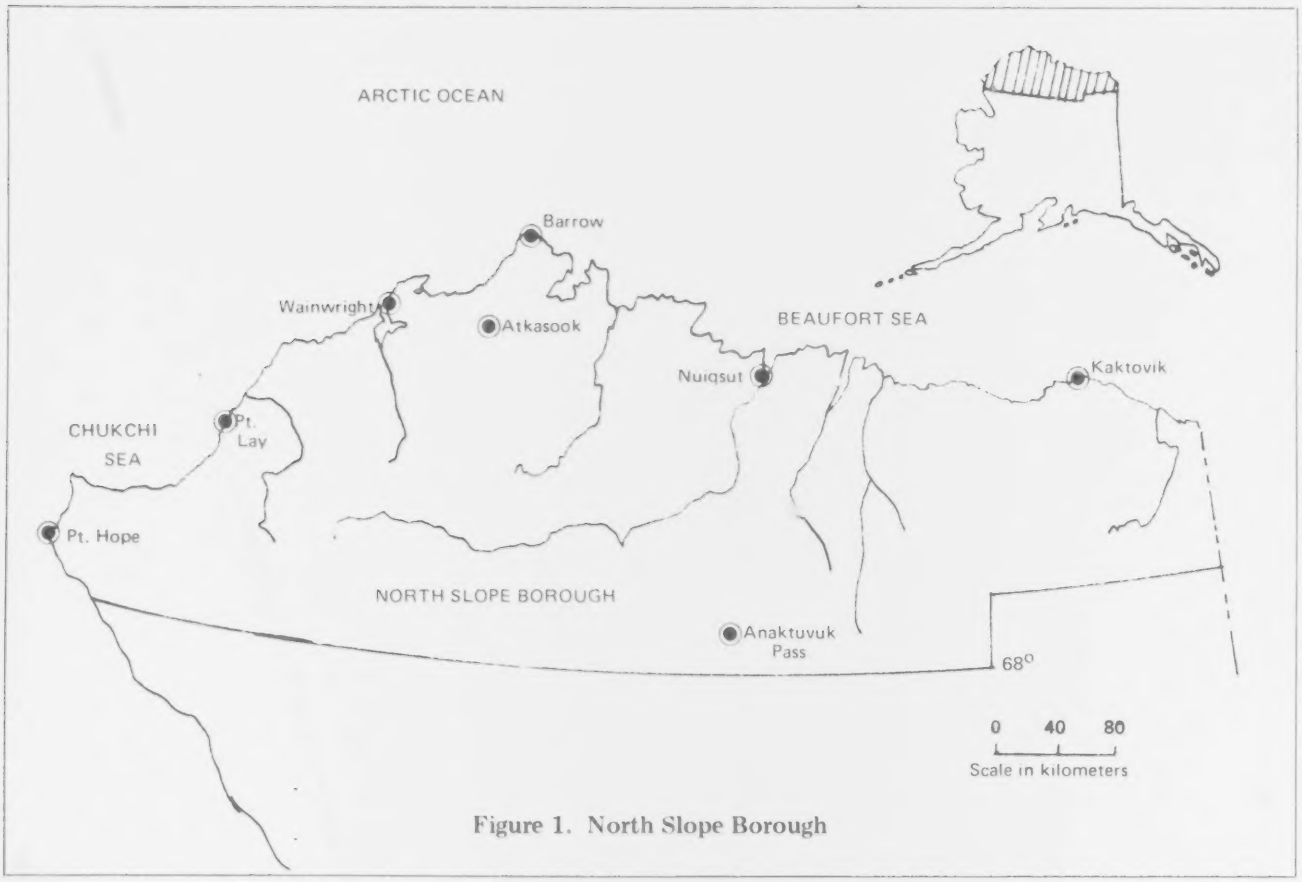

Figure 1. North Slope Borough

part-year work schedules. About half the Inupiat male population prefers part-year work to year-round employment.

The conclusion of this report discusses issues arising from the particular adaptations of Inupiat men and women to the wage economy. At least through the turn of the century, the borough's revenues and its ability to maintain local employment appear secure. Should a decline in borough revenues occur, however, Inupiat men, who are concentrated in less stable blue collar positions, may be hurt more than the women, who are concentrated in more secure white collar work. Second, in the current North Slope Borough economy, women, much more than men, have economic incentives for educational achievement. For men, the economic structure created by the borough generally does not support borough goals of increasing local skills and reducing dependency on trained outsiders. In addition, the wage economy has created significant changes in the roles of Inupiat women. New technology has diminished the need for women to provide support services to men in the subsistence economy. Inupiat women have assumed an important new economic role, providing regular cash income for household expenses and financing household activities in the subsistence sector.

Effects of the North Slope Borough's "Local Hire" Program on the Inupiat Population

Borough Employment Levels

Five years after it was established, the North Slope Borough was the largest employer of the local Inupiat population. Almost half of the jobs held by Inupiat adults in 1977 were with the borough government and the school district (Table 1). The borough had employed at some time 57 percent of the Inupiat adult population (Table 2). In contrast, the oil companies, during construction of the trans-Alaska oil pipeline and construction and operation of the Prudhoe Bay oil facility, had employed only 14 percent of Inupiat adults since 1970, and only 8 percent of these worked for longer than 12 weeks.[5]

[5]Jack Kruse, et al., *Energy Development and the North Slope Inupiat . . .*, 1980, Table 4-28.

Table 1. Employers[a] of North Slope Inupiat Adults, 18 or Over, by Village: 1977
(Percent Distribution)

Employer	Village						
	Barrow	Anaktuvuk	Kaktovik	Nuiqsut	Wainwright	Pt. Hope	All Villages
North Slope Borough	46%	52%	52%	67%	49%	55%	49%
Arctic Slope Regional Corporation	16	19	26	19	21	26	20
State/Federal Government	11	13	--	5	6	13	10
Local Government	6	--	4	--	6	2	4
Private Business[b]	21	16	18	9	18	4	17
Total	100%	100%	100%	100%	100%	100%	100%
(Total Jobs)	(136)	(31)	(23)	(21)	(49)	(46)	(306)

[a]Includes all jobs Inupiat adults held with the various employers from October 1976-September 1977.

[b]Private business includes Wien Air Alaska, oil and pipeline companies, and other commercial businesses. Those working for oil and pipeline companies made up a very small part of this category.

Source: ISER North Slope Survey, 1977, Questions 29b, 30b, 31c, 32c, 33c, 34a.

However, borough jobs did not succeed in eliminating unemployment among the North Slope Inupiat population. During 1976-77, unemployment among Inupiat adults in the primary working ages, 18-54, averaged 12 percent of the total male population and 8 percent of the total female population (Tables 3 and 4). In part, this unemployment occurred because borough employment did not last for long periods of time, due to both layoffs and work preferences of the work force, an issue later discussed. Inupiat women who were borough employees averaged 23 weeks of work, and Inupiat men, 17 weeks (Table 2).

Borough jobs were distributed with reasonable equity among men and women and across different age groups, at least in the primary working years. The borough employed somewhat higher proportions of younger workers, thus providing jobs for the large population of young adults entering the labor force (Table 2). The borough employed slightly more Inupiat men (64 percent) than Inupiat women (49 percent). However, women, primarily white collar rather than construction workers, tended to receive more total weeks of borough work than did men.

The borough provided more employment to Barrow residents than to those in other North Slope villages.[6] Which villages receive borough jobs, however, depends upon the location and timing of particular borough construction projects, which change in different years. On the basis of our 1977 survey, we cannot adequately examine borough job distribution by village.

[6] *Ibid.* Table 4-28.

Borough Jobs and North Slope Income Levels

During the period of borough activity, the monetary income of North Slope Inupiat rose substantially. Median Inupiat household income increased from about $6,923 in 1970 to about $17,347 in 1977, a gain of roughly 60 percent in real income.[7] The proportional gain in income among North Slope households from 1970-77 (2.5 times) was about the same as made by all Alaska families during this period (2.5 times) and exceeded that made by all U.S. families (1.7 times).[8] These income gains, however, have not brought Inupiat cash income to Alaska or U.S. levels. In 1976, per capita income of North Slope residents was approximately $4,094. For Alaska residents, 1976 per capita income was $10,130, and for all U.S. residents, $6,432.[9] However, levels of income may not accurately reflect levels of economic well-being. Any comparison between Inupiat and other groups must take into account other factors, such as subsistence food and

[7] *Ibid.* Table B-14.

[8] Table 743, "Median Family Money Income of Four-Person Families, by States: 1969 to 1977." U.S. Bureau of the Census, *Statistical Abstract of the United States: 1979*, Washington, D.C., 1970. This comparison is not strictly comparable to the North Slope since it is based on a four-person family standard. Information on family income changes for Alaska alone, however, is not available for this particular time period.

[9] *The Performance Report of the Alaska Economy in 1978*, Alaska Division of Economic Enterprise, Department of Commerce and Economic Development, Vol. 7, 1978, p. 33.

other sources of nonmonetary income, and cost-of-living differences. While such an analysis is beyond the scope of this study, the point is that the availability of jobs indeed had a substantial effect on cash income levels.

While the economic well-being of the general Inupiat population improved considerably with the advent of energy development, income inequity did not increase during this period.[10] Moreover, the distribution of income among the North Slope Inupiat population is virtually the same as in the United States as a whole. This pattern is not typical. In developing countries, economic change often benefits a small proportion of the population.[11]

[10]Kruse, et al., *Energy Development and the North Slope Inupiat . . .*, Table 4-2. Income inequality was assessed through the use of the Gini Coefficient.

[11]Irma Adelman and Cynthia T. Morris, *Economic Growth and Social Equality in Developing Countries* (Stanford, California: Stanford University Press, 1973).

Adelman and Morris demonstrate that economic growth typically increases income inequality and leads to an absolute decline in real income for the largest part of the population.[12] Among Navajo in the Four Corners Area, energy development during the 1970s brought a similar pattern of increased income inequity. The effect of energy employment was to create a small elite of high wage earners.[13]

The wide range of jobs that the borough made available to Inupiat workers may have been an important factor in preventing such increases in income inequity. CIP projects provided high-paying work to unskilled as well as skilled blue-collar workers. Borough government jobs also offered employment to white-collar workers with both clerical and professional skills.

[12]*Ibid.*

[13]Harris Arthur, "Preface," *Native Americans and Energy Development* (Cambridge: Massachusetts, Anthropology Resource Center, 1978).

Table 2. North Slope Inupiat Adult Employment Experience[a] with North Slope Borough, Arctic Slope Regional Corporation, Oil or Pipeline Company, by Sex and Age, 18 and Over

Employer	Sex		
	Men	Women	All Adults
North Slope Borough	64%	49%	57%
Arctic Slope Regional Corporation	24	22	23
Oil companies[b]	25	1	14
(Respondents)	(159)	(131)	(290)

Employer	Age					
	18-24	25-34	35-44	45-54	55+	All Ages
North Slope Borough	75%	68%	53%	57%	16%	57%
Arctic Slope Regional Corporation	29	25	28	21	10	24
Oil companies[b]	8	22	18	21	—	14
(Respondents)	(50)	(88)	(66)	(35)	(49)	(288)

Average Number of Weeks Worked	Age					
	18-24	25-34	35-44	45-54	55+	Total
Male	12.7	19.4	23.4	22.2	5.2	17.1
Female	26.2	31.1	20.5	22.9	5.9	22.6

[a]Includes all Inupiat adults who had worked for these employers at any time before September 1977.

[b]Includes oil companies and Alyeska Pipeline Service Company, the consortium operating the trans-Alaska Pipeline.

Source: ISER North Slope Survey, 1977, Questions 37, 38, 40.

Table 3

Labor Force Participation of North Slope Inupiat Males, 18-54, by Residence and Month, 1977
(Percentage Distribution)

Participation	Month												
	Oct 76	Nov 76	Dec 76	Jan 77	Feb 77	Mar 77	Apr 77	May 77	Jun 77	Jul 77	Aug 77	Sep 77	Annual Average
ALL MALES													
in Labor Force													
Employed	34	34	34	36	38	40	44	48	54	61	65	68	46
Unemployed, wanted work	14	13	14	19	13	12	11	10	11	7	6	6	12
Total	48	47	48	55	51	52	55	58	65	68	71	74	58
Not in Labor Force													
Intermittent workers	42	43	42	35	39	38	35	32	25	22	19	16	32
Non-wage earners	10	10	10	10	10	10	10	10	10	10	10	10	10
Total	52	53	52	45	49	48	45	42	35	32	29	26	42
Total Respondents (129)													
BARROW MALES													
in Labor Force													
Employed	34	34	37	42	44	46	49	51	59	68	71	68	50
Unemployed, wanted work	17	15	15	17	10	13	12	15	12	5	5	5	12
Total	51	49	52	59	54	59	61	66	71	73	76	73	62
Not in Labor Force													
Intermittent workers	37	39	36	29	34	29	27	22	17	15	12	15	26
Non-wage earners	12	12	12	12	12	12	12	12	12	12	12	12	12
Total	49	51	48	41	46	41	39	34	29	27	24	27	38
Total Respondents (41)													
VILLAGE MALES													
in Labor Force													
Employed	33	33	31	30	31	31	39	44	50	59	59	68	42
Unemployed, wanted work	10	11	13	20	16	11	9	7	9	9	6	6	11
Total	43	44	44	50	47	42	48	51	59	68	65	74	53
Not in Labor Force													
Intermittent workers	49	48	48	42	45	50	44	41	33	24	27	18	39
Non-wage earners	8	8	8	8	8	8	8	8	8	8	8	8	8
Total	57	56	56	50	53	58	52	49	41	32	35	26	47
Total Respondents (88)													

Source: ISER North Slope Survey, 1977.

Table 4

Labor Force Participation of North Slope Inupiat Females, 18-54, by Residence and Month, 1977
(Percentage Distribution)

Participation	Month												
	Oct 76	Nov 76	Dec 76	Jan 77	Feb 77	Mar 77	Apr 77	May 77	Jun 77	Jul 77	Aug 77	Sep 77	Annual Average
ALL FEMALES													
in Labor Force													
Employed	39	39	40	45	45	44	45	45	45	45	47	52	44
Unemployed, wanted work	8	8	8	8	8	7	6	10	10	10	8	7	8
Total	47	47	48	53	53	51	51	55	55	55	55	59	52
Not in Labor Force													
Intermittent workers	27	27	26	21	21	23	23	19	19	19	19	15	22
Non-wage earners	26	26	26	26	26	26	26	26	26	26	26	26	26
Total	53	53	52	47	47	49	49	45	45	45	45	41	48
Total Respondents (109)													
BARROW FEMALES													
in Labor Force													
Employed	47	47	49	55	55	52	55	55	56	57	57	57	53
Unemployed, wanted work	6	6	7	4	4	7	7	11	13	11	11	9	9
Total	53	53	56	59	59	59	62	66	69	68	68	66	62
Not in Labor Force													
Intermittent workers	29	29	26	23	23	23	20	16	13	14	14	16	20
Non-wage earners	18	18	18	18	18	18	18	18	18	18	18	18	18
Total	47	47	44	41	41	41	38	34	31	32	32	34	38
Total Respondents (45)													
VILLAGE FEMALES													
in Labor Force													
Employed	27	27	27	28	30	30	30	30	26	27	31	44	30
Unemployed, wanted work	9	10	9	14	12	8	5	8	5	3	3	5	8
Total	36	37	36	42	42	38	35	38	31	30	34	49	38
Not in Labor Force													
Intermittent workers	25	24	25	19	19	23	26	23	30	31	27	12	23
Non-wage earners	39	39	39	39	39	39	39	39	39	39	39	39	39
Total	64	63	64	58	58	62	65	62	69	70	66	51	62
Total Respondents (64)													

Source: ISER North Slope Survey, 1977.

Absorbing Inupiat Youth into the Labor Force

A common problem of developing areas is how to absorb into the labor force a growing population of young adults. The North Slope Borough's ability to create employment averted a potential crisis when the large population of babies born on the North Slope during the 1950s and 1960s came of working age in the 1970s.

The success of public health programs in reducing infant mortality, combined with the high cultural value placed on children, resulted in a large dependent population. In 1960, over 40 percent of the North Slope Inupiat population was 10 years of age or under.[14] By 1970, the age-specific birth rate for women 15-44 had declined by over 50 percent,[15] and the pressures of generating future jobs lessened. Children growing up in the 1960s entered the labor force in the 1970s and 1980s when the borough could provide them with jobs. Through its employment program, the borough has made a social investment which may have substantial benefits in the economic well-being of young adults and their ability to raise the next generation.

Community Evaluation of the Borough's Local-Hire Program

The North Slope Borough's local-hire program provided some employment for over half the Inupiat population, helped to raise income levels without increasing income inequity, and helped absorb the large population of young adults into the work force. Inupiat residents viewed the increase in good jobs as the single most positive change in community conditions that had occurred on the North Slope since 1970.[16] In 1977, almost 68 percent of Inupiat residents rated "number of good jobs you can get" favorably, while only 33 percent considered that the job situation had been favorable in 1970. Those residents who did not see the employment situation as improving primarily lived in villages without borough CIP projects.

Inupiat Work Patterns in a Job Situation Adapted to Contemporary Inupiat Life Styles

The North Slope Borough's local hire program eliminated or at least reduced many of the common barriers to rural Native employment. To minimize conflicts between wage work and subsistence, the borough (and the Arctic Slope Regional Corporation) had a policy of granting leaves of absence for subsistence activities. During the 1977 spring whaling season, for example, borough operations virtually came to a halt. In addition, there was high tolerance for absenteeism in both office and construction jobs. Children visited parents at the office, and working conditions were generally social and flexible.

In contrast to typical public employment programs, the borough paid high wages and offered useful jobs, not make-work positions. Borough construction pay matched the wage scales established during the building of the trans-Alaska pipeline. Indeed, during the pipeline construction period, 1974-1977, the borough essentially competed with the oil companies for Native workers. The average weekly wage of North Slope Inupiat adults in 1977 was almost $500 per week and about 25 percent had weekly paychecks of $800 or more.[17] Yet, unlike high-paying pipeline work, borough construction jobs did not require workers to leave home and cope with prejudice or an unfamiliar social environment. Over 90 percent of all the jobs held by North Slope Inupiat during 1977 were in their home villages.[18] The borough also attempted to help the Inupiat advance occupationally by establishing on-the-job training programs as well as a local Inupiat University. Thus, in terms of pay levels, local availability, opportunities for advancement, comfortable social surroundings, and adaptation to subsistence pursuits, the jobs on the North Slope tended to be "good" jobs. The majority of Inupiat residents indeed perceived large numbers of "good jobs" to be available to them.

How did North Slope Inupiat men and women respond to these job opportunities? Under the relatively favorable labor market conditions found on the North Slope, did the labor force participation rates of Inupiat men and women approach national norms? Or did special cultural factors result in lower labor force participation despite the availability of good jobs? With the emphasis on local hire and advancement, did the proportion of Inupiat in skilled occupations increase? Or did the largest proportion remain concentrated in unskilled jobs?

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[14] Kruse, et al., *Energy Development and the North Slope Inupiat . . .*, Figure 3-1.

[15] *Ibid.* Table 3-2.

[16] *Ibid.* Figure 6-1. Respondents were asked to rate fifteen conditions in 1970 and 1977. These included such areas as hunting and fishing, prices of food and clothing, schools, home living space, etc. The largest positive change occurred in the area, "the number of good jobs you can get."

[17] *Ibid.* Table 4-16.

[18] This statistic refers to North Slope Inupiat adults interviewed. North Slope households also reported that about 29 percent of members were temporarily away from home. Of these, about 37 percent were away because of employment. However, many of these moves were to Barrow, Nuiqsut, and other nearby North Slope villages.

Table 5

Annual Average Labor Force Participation of North Slope Inupiat, 18-54, by Sex and Residence, Compared to National Norms: 1977

	Labor Force Participation (Percentage Distribution)					
	North Slope Inupiat			All U.S. Workers		
Sex	Barrow	Villages	Total*	White	Black	Total
Males	62%	53%	58%	92%	84%	91%
Females	62	38	52	60	61	61

*Percentages for North Slope males are based on 129 respondents, 41 in Barrow and 88 in the villages. Percentages for North Slope females are based on 109 respondents, 45 in Barrow and 64 in the villages.

Source: U.S. Department of Labor, *Employment and Training Report of the President*, 1978; ISER North Slope Survey, 1977.

Inupiat Labor Force Participation Compared to National Norms

Despite cultural differences and geographical isolation, Inupiat women participated in the labor force almost as much as did women nationally (Table 5).[19] They held secretarial and bookkeeping positions, for example, and worked as teachers' aides and health aides. Inupiat women had an annual labor force participation rate of 52 percent compared to a national female labor force participation rate of 61 percent. Among Barrow residents, the female labor force participation rate reached 62 percent. As we will later discuss, those Inupiat women with low labor force participation rates tended to be a small group of older village women who preferred not to speak English in the survey interview. Village women who preferred to speak English participated in the labor force about as much as Barrow women.

About 26 percent of Inupiat women did not work for wages in 1977 (Table 4). Like women nationally, the major reason (84 percent) that these women gave for not working outside the home was family pressures and responsibilities (Table 6). As one explained, "My husband doesn't want me to work—just take care of the kids. I've been wanting to go to work but he won't let me." These family restraints may well diminish. A day-care facility, for example, has become first priority for the 1979

[19]The response of North Slope Inupiat women to the job opportunities created through the North Slope Borough construction boom also differed little from the response of Fairbanks and Anchorage women to the job opportunities created during the trans-Alaska pipeline construction boom. In 1976, the height of the construction boom, 59 percent of Fairbanks women and 54 percent of Anchorage women were in the labor force (*The Status of Women in Alaska*, compiled by the University of Alaska's Institute of Social and Economic Research and Joan Katz, for the Alaska State Commission for Human Rights, January, 1977, p. 53). These statistics are based on a survey of the Anchorage population conducted by Diddy Hitchins, Richard Ender, and Hayden Green, *Anchorage Housing Study*, 1975, and a survey of the Fairbanks population conducted by John Kruse, Institute of Social and Economic Research, in 1975. These statistics are not strictly comparable to the North Slope labor force participation rates since they refer to labor force participation during one point in time, the survey month (not annual averages), and they include adults in general, whereas the North Slope data concerns adults from 18-54.

Table 6

Reasons Why North Slope Inupiat, Ages 18-54, Were not Employed, by Sex: 1977
(Percent Distribution)

	Sex		
Reasons	Males	Females	Total
Family responsibilities	8%	84%	64%
Poor health	41	10	18
Could not find work	17	–	5
Laid off	17	–	4
Other	17	6	9
Total	100%	100%	100%
(Respondents)	(9)	(20)	(35)

Significance and Association

$\chi^2_4 = 19.52, p < .001; \phi_b = .56$

Source: ISER North Slope Survey, 1977.

Capital Improvements Projects in Barrow, due to strong community pressure to provide a place for young children so that parents can get and keep jobs. As one mother said at a special community meeting to discuss the need for the center:

> As a working mother, I find that even a reliable babysitter is in great demand. There are so many jobs available to anyone that when a working mother or father wants to work, we have problems trying to find a babysitter.[20]

In contrast to Inupiat women, the labor force participation of Inupiat men in the prime working ages differs substantially from national patterns. While an annual average of 91 percent of U.S. men from 18 to 54 are in the labor force, the annual average labor force participation of North Slope Inupiat men in this age group is 58 percent, less than two-thirds the national average.[21] Inupiat men in Barrow, the center of job opportunities, participate in the labor force only somewhat more (62 percent) than men living in the villages (53 percent).

This pattern of male labor force participation does not occur because a large number of Inupiat men choose not to work in the wage economy. Very few Inupiat men (10 percent) are non-wage earners, and most of these are out of the labor force due to poor health.[22] The major reason for the low rate of labor force participation by Inupiat males compared to national patterns is that about half of these men participate in the cash economy intermittently. During 1977, on the average, about a third of the Inupiat male workers were temporarily out of the labor force (Table 3).[23]

[20]North Slope Borough, *Annual Overall Economic Development Program Report and Program Projection*, July 1979, p. 25.

[21]These male labor force participation rates are not due to the possibility that a large number of Inupiat men were away from home working and were therefore missed in the survey. The interview asked if any member of the household was temporarily away from home and, if so, why they were away. Of the Inupiat men temporarily away from home, only 13 percent were gone because of employment. The labor force participation rate of Inupiat men away from home was thus lower than that of Inupiat men generally on the North Slope.

[22]Nationally, the major reason that prime working-age men do not work is that they are in school (46 percent), although health problems are second in importance (25 percent). (U.S. Department of Labor, *Handbook of Labor Statistics, 1977*, Bulletin 166, Washington: U.S. Government Printing Office, 1977.) Our survey did not include Inupiat men away at school, who would have been enrolled outside the North Slope. However, since only 10 percent of males temporarily away (6 individuals) were reported by their families to be at school, this is unlikely to be an important explanation for not working in the cash economy.

[23]Our estimate of the proportion of North Slope Inupiat who are intermittent workers is probably too high due to limitations of our survey measure. The survey was conducted in the fall of 1977 and people may have forgotten to mention some months during the previous year when they wanted work. Such forgetting may account for some of the people classified as temporarily withdrawn. However, measurement error is not the entire explanation. In September 1977, the month just prior (or very close) to the survey interview, 16 percent of North Slope Inupiat men were not working and did not say they wanted work.

Basis of Inupiat Male Pattern of Labor Force Participation in the Wage Economy

There are two reasons for the comparatively low rate of Inupiat male labor force participation in the wage economy. The most important of these is economic, resulting from lack of job opportunities during certain seasons and in certain villages. The second reason for low participation is personal choice, since many Inupiat men prefer an intermittent work style. The effects of both these factors were evident in 1977, when a summer job boom followed a winter of poor job opportunities.

Due to temporary financing difficulties in the winter of 1976-77, the borough cut back its construction program. Work continued primarily on projects close to completion. Intensive construction work resumed in the summer of 1977. This increase in job opportunities dramatically affected Inupiat male employment. Labor force participation almost doubled, climbing from a low of 47 percent in November 1976 to a high of 74 percent in September 1977 (Table 3).

However, even during months when good job opportunities were abundant, Inupiat male labor force participation still remained below national norms. In Barrow during the intense 1977 summer construction season, for example, labor force participation peaked at 76 percent of Inupiat men in the primary working ages (Table 3). One explanation for this pattern may be voluntary withdrawal from the labor force during certain months of the year. When asked about their work schedule preferences, slightly over half of Inupiat men said that they preferred to work in the wage economy only part of the year (Table 7). Blue-collar construction work provides men with this job flexibility. About the same proportion of Inupiat women also prefer part-year work. However, Inupiat women are primarily white-collar workers in year-round positions. Inupiat men, except in the oldest age group, tended to be somewhat less likely than women to work year-round (Table 8).

The preference of many Inupiat men for part-year work does not appear to be changing in the younger generation. Among North Slope male high school students, especially those in the villages, more

than half also prefer part-year work schedules (Table 7). In contrast, Inupiat women may be shifting slightly more toward year-round work. Inupiat female high school students, for example, are significantly more likely than male students to desire year-round work.[21]

What is the basis for part-year wage work preferences among many Inupiat men? According to the conventional wisdom, the time required for hunting conflicts with the time requirements of wage work. Our analyses of the way Inupiat men allocate their time in the subsistence and wage economy suggest that this explanation is not adequate. Time

[21] Judith Kleinfeld and Jack Kruse, *High School Views of North Slope Borough Students*. (Fairbanks: University of Alaska, Institute of Social and Economic Research, 1977). The question asked in the high school student survey was: "After you have finished your schooling, do you want a year-round job or to work only part of the year so you can hunt and fish a lot, or don't you want a job?" Although women also hunt and fish, this phrasing may have biased the part-time job alternative for female students.

Table 7

Work Schedule Preferences of North Slope Inupiat Adults (18-54) and Inupiat High School Students, by Residence and Sex: 1977
(Percentage Distribution)

	Residence					
	Barrow		Villages		Total	
Preferences	Males	Females	Males	Females	Males	Females
North Slope Adults						
Year-round job	28%	44%	48%	45%	42%	45%
Part-year job	72	56	48	49	56	52
No job	–	–	4	6	2	3
Total	100%	100%	100%	100%	100%	100%
(Respondents)	(36)	(34)	(77)	(49)	(113)	(83)
North Slope High School Students						
Year-round job	46%	67%	18%	50%	31%	59%
Part-year job	54	33	82	50	69	41
No job	–	–	–	–	–	–
Total	100%	100%	100%	100%	100%	100%
(Respondents)	(35)	(51)	(40)	(48)	(75)	(99)

Significance and Association
High School Students

Barrow: $\chi^2_1 = 3.74$, n.s.

Villages: $\chi^2_1 = 10.10$, $p < .01$; $\phi = .10$

Total: $\chi^2_1 = 13.37$, $p < .01$; $\phi = .08$

North Slope Adults

Barrow: $\chi^2_1 = 0.86$, n.s.

Villages: $\chi^2_2 = 0.45$, n.s.

Total: $\chi^2_2 = 0.56$, n.s.

Source: ISER North Slope High School Survey, 1977; ISER North Slope Survey, 1977.

conflicts between hunting and wage work may indeed explain withdrawing from the labor force in some situations, for example, when the work is located outside the region or when employers do not give subsistence leave. As one young man described why he had quit his pipeline job, "I worked until April '76. It was whaling time and I came home. I told them they didn't have enough dollars to keep me working." The North Slope Borough economy, however, provided local jobs and major employers granted subsistence leave. Only 4 percent of Inupiat men said they quit work to hunt, and these were all 18-24 year olds

North Slope Inupiat men have been highly successful in integrating subsistence pursuits with wage employment. Carrying out a high level of subsistence activities does not necessarily require long periods away from wage work. Modern hunting technology—snow machines, rifles, outboard motors, and airplanes—has greatly reduced the time requirements. No longer must large amounts of time be spent traveling to good hunting areas or in the painstaking construction and repair of equipment. Subsistence activities can be actively pursued on weekends, after work, and on vacation and leave time. Indeed, half or more of the North Slope Inupiat adults surveyed participated in central subsistence activities on such a part-time basis. The only exception was spring whaling, which 54 percent of adults carried out full-time.[25]

Inupiat men who worked in the wage economy most of the year and those who worked shorter periods differed little in their levels of subsistence activities (Table 9). Among Inupiat men who worked 9—12 months per year in the wage economy, 52 percent maintained medium to high levels of subsistence effort. Among men who worked only 1—4 months, 45 percent maintained similarly high levels of subsistence activities. Moreover, Inupiat men who

[25]Kruse, et al., *Energy Development and the North Slope Inupiat . . .*, Table 5-10.

Table 8

Year-Round and Part-Year Work Patterns of North Slope Inupiat Wage-Earners, by Age and Sex: 1977

Employment Pattern	Age 18-24	25-34	35-44	45-54	Total
Males					
Year-round*	29%	41%	33%	64%	39%
Five-to-eight months	15	30	20	6	22
Four months or less	56	29	47	30	39
Total	100%	100%	100%	100%	100%
(Respondents)	(16)	(47)	(29)	(14)	(106)
Females					
Year-round*	55%	64%	59%	58%	60%
Five-to-eight months	14	8	34	30	16
Four months or less	31	28	7	12	24
Total	100%	100%	100%	100%	100%
(Respondents)	(19)	(24)	(10)	(9)	(62)

*Year-round employment was defined as 9-12 months, in order to be consistent with the full-time work schedule of the school district.

Significance and Association

Males: $\chi^2_6 = 10.89$, $p = .09$; $\tau_c = .09$

Females: $\chi^2_6 = 3.31$, n.s.; $\tau_c = .07$

Source: ISER North Slope Survey, 1977.

Table 9

Annual Effort North Slope Inupiat, 18-54, Spent on Subsistence by Months Worked for Wages and by Sex: 1977*
(Percentage Distribution)

Annual Effort on Subsistence	Months Worked for Wages				
	0	1-4	5-8	9-12	Total
Males					
None	29%	25%	17%	20%	23%
Low	13	30	38	28	28
Medium	36	20	16	32	26
High	22	25	29	20	23
Total	100%	100%	100%	100%	100%
Average Annual Effort	5.3	4.9	5.5	4.9	5.2
(Respondents)	(24)	(41)	(26)	(39)	(130)
Females					
None	39%	46%	41%	34%	39%
Low	28	50	40	38	36
Medium	22	4	19	10	14
High	11	–	–	18	11
Total	100%	100%	100%	100%	100%
Average Annual Effort	3.5	1.0	2.4	3.6	3.1
(Respondents)	(47)	(17)	(8)	(37)	(109)

*See Appendix for a detailed explanation of the subsistence index of effort.

Significance and Association

Males: $\chi^2_9 = 6.98$, n.s.

Females: $\chi^2_9 = 7.93$, n.s.

Source: ISER North Slope Survey, 1977.

were temporarily out of the labor force during a particular month generally had no higher levels of subsistence activity that month than men who were employed. In interpreting these patterns, it is important to keep in mind that the measure of subsistence activity used in the survey was not precise. The interview asked if the person participated in each subsistence activity and if it took "most of your time, was it something you did sometimes or on weekends or after work, or was it something you went on vacation or leave to do?" The interview did not ask, for example, exactly how many days or hours the person spent in the activity. Nonetheless, these results raise questions about the common assumption that desire to pursue subsistence activities is the central explanation for part-year work patterns.

If time conflicts between wage work and subsistence are not the entire explanation for preferences for part-year work, what else might be important? One possibility is the increased value of leisure time, given the high wage rates on the North Slope (the backward bending supply curve). Another explanation is the historical experience of Inupiat men in the wage economy, the process of socialization into wage work.[26] Wage work patterns of men from the turn of the century onward reinforced the intermittent work rhythms of the traditional hunting econ-

[26]For a careful analysis of Inupiat subsistence and wage work patterns from the turn of the century to the early 1950s, see Joseph Sonnenfeld, *Changes in Subsistence Among the Barrow Eskimo*, Ph.D. dissertation, Johns Hopkins University, 1957.

omy. During the commercial whaling economy (circa 1854-1906), whalers competed strenuously for the labor of Inupiat crew members, particularly skilled harpooners.[27] For a six-week work season, the Inupiat crew and their families were supported through the remainder of the year by provisions of food, clothing, and housing. Inupiat men's first widespread experience with wage work unrelated to hunting and trapping occurred through the Department of the Navy's oil exploration program in Naval (National) Petroleum Reserve No. 4 (1946-1953).[28] Barrow Inupiat petitioned for construction employment, and the Navy agreed that its civilian contractor, Arctic Construction (ARCON), would employ local labor. The Inupiat employees received high union wages with time and a half for overtime. The work required a taxing 9-hour, 7-day schedule, and employees were also frequently laid off. Thus, the majority of Inupiat men did not work for long or consecutive periods. On the average, Inupiat men worked 25 months out of the possible 87-month work period.[29] The end of the ARCON program brought a period of severe unemployment, but Defense and Early Warning (DEW) Line construction began within a year. In his study of DEW-Line employment at Kaktovik, Chance found the pattern similar to ARCON employment—high demand for Inupiat labor, high wages, great desire on the part of the Inupiat to participate in wage work, and a successful job adaptation combined with some intermittent work patterns.[30] In the 1960s, a series of uncoordinated government construction projects (schools, water supply improvements, electrical power, airport improvements, a gas distribution system, etc.) continued the historical cycle of boom and bust.[31] Given these historical conditions, intermittent labor at high-paying jobs may well have become a central cultural adaptation of many Inupiat men to the wage economy. The current North Slope economy is continuing this socialization experience.

Perhaps the better question is *not* "why do many Inupiat men prefer part-year work?" but "why should many Inupiat men want to work year-round?" Unless men are married and supporting a family (an important factor discussed later), economic pressures to work year-round are not necessarily strong. A teacher described the situation in one large North Slope village:

> I've had twenty-three students graduate over the last 3 years. Except for two working temporary construction, the others are hanging out. Last year I placed five graduates in good jobs. They drifted out over the summer. What's the incentive to work? The kids live with their parents. They get food, clothes, some spending money.

In contrast to middle-class whites, social prestige or sense of identity among North Slope Inupiat may have little to do with occupational achievement. The ethnographic interviews suggest that hunting remains far more important. Young men who chose intermittent work patterns, for instance, discussed their wage jobs in superficial generalities but described their hunting activities with involvement and intensity. Despite the shift from subsistence to cash as the economic foundation of contemporary life on the North Slope, the "professional" hunter, competent to survive in the arctic, remained a central male character ideal. As one young man said of his brother:

> He's a hunter. He's always hunting. He'd be there surviving. That guy can live on anything. He's all right. He got a fox by running after it. He only works part time when he wants to make money. He's a wise man, smart.

In sum, personal preference as well as the economic situation may be important in explaining male Inupiat patterns of labor force participation. *The primary factor, however, is job availability.* The single most important reason (39 percent) for job termination among Inupiat men in 1977 was being laid off. Lay-offs seriously affected men throughout the 18-44-year age range, while they seriously affected women only in the youngest age group.

Changes in Inupiat Labor Force Participation Rates Over Time

The job opportunities created by the North Slope Borough have enabled increasing numbers of Inupiat women to enter the labor force. These opportunities, however, did not suddenly increase Inupiat female labor force participation but rather reinforced a long-term historical trend. In 1960, according to census information,[32] only 12 percent of Inupiat women were in the labor force (Table 10). In 1970, women's labor force participation jumped to

[27] *Ibid.*

[28] *Ibid.*

[29] *Ibid.*

[30] Norman Chance, *The Eskimo of North Alaska* (New York: Holt, Rinehart, and Winston, 1966).

[31] E.R. Rice and J. Ronald Saroff, *The Barrow Community Development Study* (Fairbanks: University of Alaska, March 1964).

[32] Census information needs to be used with caution due to its unreliability in rural areas (see Appendix A). The census remains, however, the best source of quantitative historical information.

Table 10

Changes in Labor Force Patterns and Marital Status of North Slope Inupiat Adults, by Sex and Year: 1960, 1970, 1977*

	Social and Economic Change					
	Males			Females		
March Labor Force Participation	March 1960	March 1970	March 1977	March 1960	March 1970	March 1977
In the Labor Force						
Employed	42%	51%	44%	4%	21%	45%
Unemployed, wanted work	26	10	13	8	2	8
Total	68%	61%	57%	12%	23%	53%
Not in the Labor Force	32%	39%	43%	88%	77%	47%
Total Persons	(340)	(674)	(102)	(287)	(570)	(87)
Annual Median Weeks Worked						
Employed population only	–	34	26	–	25	47
Total Persons	–	(469)	(85)	–	(172)	(53)
Marital Status						
Percent Not Married	40%	43%	50%	20%	27%	33%
Total Persons	(400)	(601)	(115)	(299)	(524)	(96)

*Labor force participation and median weeks worked reflect changes for adults 18-64, while marital status reflects changes for Inupiats 18 and over. Point Hope and Kaktovik were excluded to maintain comparability with census data.

Source: U.S. Census, 1960, 1970; ISER North Slope Survey, 1977.

23 percent. By 1977, the proportion of Inupiat women in the wage economy more than doubled again. In addition, those women who were employed tended to stay in the wage economy longer. Median weeks worked of employed Inupiat women climbed from 25 weeks in 1970 to 47 weeks in 1977.

The entrance of Inupiat women into the labor force parallels the national increase in female labor force participation, but it is much more extreme. Between 1960 and 1977, Inupiat female labor force participation increased more than four times. During this period, the labor force participation of rural black women (the female population group with the greatest growth) increased by 50 percent, and the labor force participation rates of urban white women increased by 33 percent.

It is not clear that Inupiat male labor force participation rates have similarly increased over time. According to the census, in March 1960 about 68 percent of Inupiat men between 18 and 64 were in the labor force. In March 1977, the North Slope survey indicated that 57 percent of Inupiat men were in the labor force. In addition, the median weeks worked of employed Inupiat men appears to have dropped from 34 weeks in 1970 to 26 weeks in 1977. Differences in the questions used to determine labor force status in various years do not easily explain why male labor force participation would be lower in 1977.[33] An-

[33]The 1960 census question used to measure unemployment asked whether the person was "looking for work." This general question, requiring no *specific* job-seeking activity, was similar to the ISER 1977 survey question which asked whether a person merely *wanted work* during months when not working. The 1970 census question implied actual job-seeking activity during the month: "Has this person been looking for work during the past four weeks?" Thus, the drop in male labor force participation between 1960 and 1970 could be a measurement artifact. However, the survey question during 1977 was very liberal in the definition of unemployment and should have resulted in high labor force participation

(Footnote 33 continued on next page)

other possible explanation is that male employment on the North Slope was atypically low in March 1977, since work on Borough construction projects was beginning to resume after delays caused by financing problems. Yet, even in September 1977, the peak employment month on the North Slope, Inupiat male labor force participation was only 72 percent of the male work force in the 18-64 year age group, a rate not substantially higher than reported during non-peak months in the 1960 census (68 percent) or 1970 census (61 percent).

It is also of interest that the proportion of Inupiat men employed on the North Slope during the peak work season in 1977 differed very little from the peak employment level reported in the 1940s. During the height of the ARCON boom, Sonnenfeld estimated Inupiat male employment in Barrow at about 75 percent of the population.[34] Thus, the peak employment level for Inupiat men may be remaining somewhat stable. There is, however, some evidence supporting the more expected pattern, that male labor force participation has increased over time. In the North Slope survey, slightly over half of the Inupiat men said that they had worked more in 1977, primarily because more jobs were available (Table 11). This belief reflects a realistic assessment; more jobs did exist on the North Slope in 1977 than in 1970. However, while 54 percent of Inupiat men said they had worked more in 1977, 45 percent said they had worked about the same amount or even less. Thus, the apparent contradiction between census trends and personal estimation may actually not be substantial. In addition, it would be quite difficult for men, particularly those who had worked intermittently, to remember exactly how long they had been employed 7 years ago. It would be natural to assume that, since more jobs were available, one had experienced more employment.[35] The conservative conclusion is that Inupiat male labor force participation has probably remained about the same between 1960 and 1977.

Table 11

Perceived Changes in the Time that North Slope Inupiat Wage Earners, 25-54, Spent Working in 1977 Compared to 1970, by Sex and Age*

(Percentage Distribution)

	Sex		
Working in 1977	Males	Females	Total
More	54%	58%	55%
About the same	26	23	25
Less	20	19	20
Total	100%	100%	100%
(Respondents)	(105)	(66)	(171)

	Working in 1977			
	Men		Women	
Reasons	More	Less	More	Less
More jobs now	58%	–	42%	–
Less jobs now	–	48	–	31
Chose not to work for wages	–	–	3	8
Have better job	12	–	13	–
Need more money	23	–	5	–
Personal reasons	7	52	37	61
Total	100%	100%	100%	100%
(Respondents)	(48)	(25)	(24)	(9)

	Age			
Working in 1977	25-34	35-44	45-54	Total
More	52%	44%	83%	55%
About the same	20	28	7	20
Less	28	28	10	25
Total	100%	100%	100%	100%
(Respondents)	(71)	(39)	(23)	(133)

*The question read, "Did you spend more, less, or about the same amount of time working for pay this year compared to the time you spent in 1970?" And, if more or less, "Why is that?"

Source: ISER North Slope Survey, 1977.

Why Inupiat Women Have Surged into the Work Force

Economic development does not necessarily increase the labor force participation of women. Quite the contrary, in many countries the transition from a traditional to a modern economy has reduced the economic activity of women.[36] In developing African nations, for example, men typically seek

(Footnote 33, continued)
rates. Still, differences in specific questions used in 1960, 1970, and 1977 and other problems, such as census inaccuracies or forgetting employment desires in a past month, necessitate cautious interpretation.

[34] Sonnenfeld, *Changes in Subsistence . . . .*, 1957, pp. 544-545.

[35] In addition, Inupiat men from 25-54 years may have seen themselves as working more in 1977 because this group includes some men who were 18-24 years old seven years ago, a life-cycle period of lower labor force participation.

[36] John D. Durand, *The Labor Force in Economic Development* (Princeton: Princeton University Press, 1965).

wage employment in mines and factories, leaving women in rural areas to tend children and work on small subsistence farms. In addition, growth of a modern commercial sector tends to hurt informal trade, a traditional sphere of female economic activity. Colonial education systems also shut women out of the modern economic sector by neglecting their education in favor of preparing a small group of men for government jobs.[37] A central theme in the research literature is the deterioration that economic development frequently brings to the economic position, status, and prestige of women.[38]

The effects of economic development on female labor force participation depend on a number of factors—the particular type of labor that is in demand, the educational levels of women, and cultural norms defining women's roles. Examining changes in female labor force participation over time in more than 100 countries, Durand concludes:

> As economic development progresses, the overall level of participation by females in the labor force rises in some countries, falls in others, and oscillates in still others. . . . Whether economic development brings an increase or a decrease of opportunities for women to be employed depends to a great extent on the relative proportions of female workers employed in the fields that expand and those that contract in the process of development.[39]

The high participation rate of Inupiat women in the wage economy results from a number of favorable conditions. On the labor demand side, the specific type of development that has occurred on the North Slope has brought large numbers of jobs which the majority culture has conventionally defined as women's work. Since the 1960s, government has been a steadily expanding industry, and government employs large numbers of clerical, education, health, and social service workers.

On the supply side, Inupiat women have received both the general education and specific vocational training that qualifies them for wage work. In the younger generation, Inupiat women's level of educational attainment parallels that of men.[40] About a third of Inupiat women have received vocational training in paraprofessional programs and another 20 percent in clerical fields. Nor do Inupiat cultural attitudes toward women's roles seriously restrain female labor force participation as they do, for example, in Moslem countries with a tradition of female seclusion.

The difficulties of the woman's role in the former subsistence economy may also have intensified Inupiat women's desires to move into the modern sector. As Brower describes the allocation of work at the turn of the century:

> The old man hung all his whalebone on his wife's back, first lashing the butts so that the tips of the bone stuck out six feet on either side. Although the woman took it as a matter of course, it made me groan just to see her straining under the load. Not so their two full-grown sons. Hardly had they started when the boys hung their bone on her back as well. This left them with only their rifles to carry. Soon even these were a burden, so they piled them on their mother, too.
>
> It was a sight to remember—that loaded-down woman followed by three husky men sauntering along with their hands behind them, at peace with the universe.[41]

The movement of Inupiat women into the wage economy is one aspect of long-term processes of cultural change through which women are seeking wider alternatives. One Eskimo woman in southwestern Alaska offered an interpretation that may have more general applicability:

> Native men lost more in the cultural changes that have taken place. It's hard for men to identify with the jobs they can get in the villages. Women didn't lose so much. Now they can get a job, move about, use their intelligence.

Differences in Participation in the Wage Economy Between Young People and the Older Generation

A commonly held view is that young people, better educated and less traditional, will participate in the wage economy more than the older generation. This pattern appears to be occurring only for Inupiat women (Figure 2). For women, a small but statistically significant relationship occurs between age and labor force participation ($r = -.20$, $p < .05$). Among men, however, such a pattern is not clear. No statistically significant relationship occurs between age and labor force participation. The numbers of individuals sampled in each age group, however, are small.[42] Nonetheless, it is of interest that the expected pattern, at least for men, is not evident.

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[37]Guy Standing, "Education and female participation in the labor force," *International Labor Review*, 114(3), 1976, pp. 281-297.

[38]The classic study in this field is Ester Boserup, *Women's Role in Economic Development* (London: Allen and Unwin, 1970). An excellent research synthesis, together with an annotated bibliography, may be found in Irene Tinker, Michele Bo Bramser, and Mayra Buvinic, *Women and World Development* (New York: Praeger Publishers, 1976).

[39]Durand, p. 120, 150.

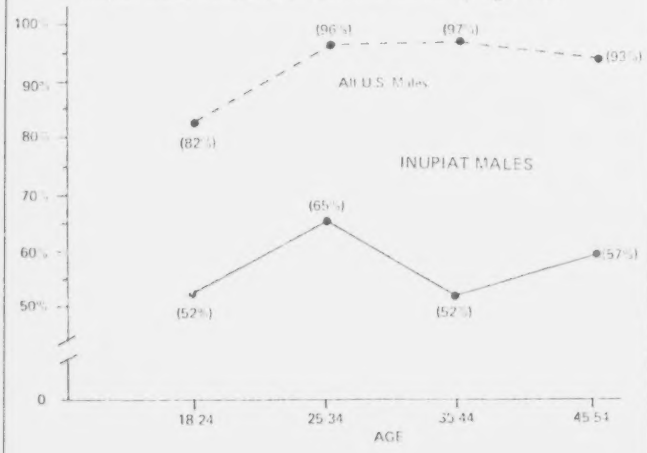
[40]Kruse, et al., *Energy Development and the North Slope Inupiat . . .*, Table 3-6.

[41]Charles Brower, *Fifty Years Below Zero* (New York: Dodd, Mead and Co., 1942), p. 106.

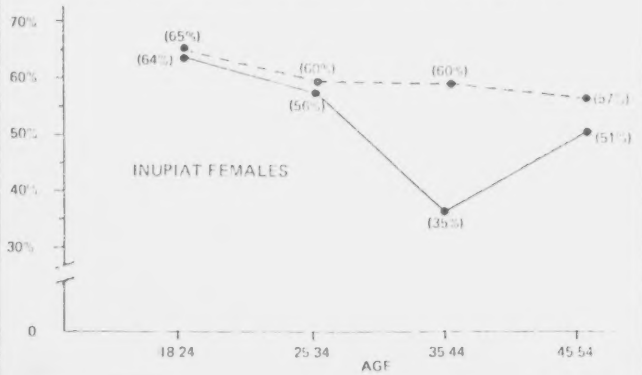
[42]Inupiat males: 18-24 (n=24); 25-34 (n=40); 35-44 (n=36); 45-54 (n=19). Inupiat females: 18-24 (n=26); 25-34 (n=38); 35-44 (n=29); 45-54 (n=16).

Figure 2

A. Annual Average Labor Force Participation Rates of North Slope Inupiat Males Compared to National Norms by Age: 1977



B. Annual Average Labor Force Participation Rates of North Slope Inupiat Females Compared to National Norms by Age: 1977



Source: U.S. Department of Labor, *Employment and Training Report of the President*, 1978; ISER North Slope Survey, 1977.

Inupiat Male and Female Participation in the Wage and Subsistence Economies

The similarity of Inupiat male and female participation in the wage economy is unusual. In most societies, men outnumber women in the labor force. In over 80 percent of all nations, about twice as many men as women are economically active outside of the subsistence sector. Those countries with about equal male and female labor force participation rates tend to be (1) agricultural societies at the lowest stage of economic development, such as Burundi and the Ivory Coast; (2) highly developed socialist societies, such as Denmark and Sweden; and (3) Caribbean countries where unstable marriage relationships make it necessary for women to achieve economic independence, such as Haiti and Jamaica.[43]

Inupiat men participate considerably more than Inupiat women, however, in the subsistence economy, at least in those major productive activities which occur outside of the household.[44] In every age group, men exceed women in subsistence effort (Table 12). This difference is most marked in the youngest age groups. Among 18-24 year olds, 55 percent of the men have medium or high levels of subsistence effort compared to 13 percent of the women.

In sum, Inupiat men maintain moderate levels of activity in both the subsistence and wage economies. The pattern is typical of young men as well as the older generation. In contrast, Inupiat women maintain levels of activity comparable to men in the wage economy but are less active in the subsistence economy. Young Inupiat women especially appear to be more attached to the wage economy and less active in the subsistence sector.

Individual Characteristics Related to Higher Labor Force Participation

If age is not important in explaining differences in labor force participation, what other factors might be important? Analyses of the relationship of personal characteristics to number of months in the labor force suggest that there are between men and women major differences in those characteristics that lead to participation in the wage economy. Among Inupiat males, being head of a family is the factor most strongly related to labor force participation (Table 13). Preservice vocational education is also related to higher labor force participation, but it only makes a significant difference if the man is a family head. A North Slope Inupiat male who is not a family head and has not received vocational education is in the labor force less than half a year, an average of 5.1 months. A North Slope Inupiat male who is a family head and has vocational training is in the labor force almost twice as much, an average of 9.4 months.

Most other background or personal characteristics measured in the survey have little effect on male labor force participation—numbers of dependents, the availability of transfer payments in the households,

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[43] United Nations International Labor Office, *1977 Year Book of Labor Statistics*; Eli Ginzberg, *Manpower for Development: Perspectives on Five Continents*, New York: Praeger, 1971; Nadia Youssef, *Women and Work in Developing Societies*, University of California, Berkeley, Population Monograph Series No. 15, 1974.

[44] We do not deal with Inupiat participation in the subsistence economy in detail because it is the subject of another monograph in this series.

Table 12

Annual Effort that North Slope Inupiat Adults Spent on Subsistence, by Sex and Age: 1977[a]
(Percentage Distribution)

Annual Effort on Subsistence	Age 18-24	25-34	35-44	45-54	Total
Males					
None	17%	22%	25%	32%	23%
Low	28	28	30	22	28
Medium	28	23	34	16	26
High	27	27	11	30	23
Total	100%	100%	100%	100%	100%
Average Annual Effort[b]	5.7	5.6	4.5	5.8	5.4
(Respondents)	(24)	(50)	(37)	(19)	(130)
Females					
None	41%	36%	44%	32%	39%
Low	46	35	20	49	36
Medium	8	19	23		14
High	5	10	13	19	11
Total	100%	100%	100%	100%	100%
Average Annual Effort[b]	1.8	3.3	3.7	3.8	3.1
(Respondents)	(26)	(38)	(29)	(16)	(109)

[a]See Appendix for a discussion of the construction of this subsistence index.

[b]Averages were computed on ungrouped data. An average of 5.4, for instance, indicates medium effort was spent doing subsistence, while an average of 3.1 indicates low effort.

Significance and Association

Males: $\cdot \frac{2}{9} = 6.13$, n.s.

Females: $\cdot \frac{2}{9} = 11.60$, n.s.

Source: ISER North Slope Survey, 1977.

ethnicity, parents' work patterns, etc. (Table 14). A higher general level of education is also associated with a higher male labor force participation, but historical trends do not suggest that increased education leads to increased male labor force participation. Educational levels have dramatically increased on the North Slope for both men and women, rising from a median of 3.7 grades completed in 1960 to 8.8 grades completed in 1977 for adults 25 or above.[45] Yet, male labor force participation does not seem to have increased during this period.

[45]Kruse, et al., *Energy Development and the North Slope Inupiat . . .*, Table 3-7.

Marriage and the responsibility for supporting a family, however, may well be a central causal factor pushing Inupiat men into the cash economy. The relationship between marriage and labor force participation may have other interpretations. For example, Inupiat women may prefer to marry men whom they see as good providers in the wage economy. Our ethnographic interviews, however, suggest that marriage may well change attitudes toward wage work. One young man said, "before I started this job, I decided to keep it as long as I can—then I'll be doing my hunting every chance I get. One of the reasons was I got married. . . ."

Table 13

Effect of Preservice Job Training on Labor Force Participation of North Slope Inupiat Males, 18-54, by Heads of Families: 1977
(All Families)

Males	Statistical Characteristics*				
	Average Months LFP	Standard Error	Number of Respondents	Mann-Whitney Statistic	Level of Significance
Heads of Families					
Have preservice	9.4	+/- 0.68	(27)	358.0	.001
No Preservice	6.0	+/- 0.64	(46)		
Non-Heads of Families					
Have preservice	6.0	+/- 1.10	(15)	132.5	n.s.
No preservice	5.1	+/- 1.11	(21)		
All Males in Families					
Heads of Families	7.3	+/- 0.52	(73)	948.0	.02
Non-Heads of Families	5.4	+/- 0.79	(34)		

*Although the Mann-Whitney statistical test is computed on the mean rank within groups, the average number of months Inupiat males worked for wages or wanted a job is reported since this average is more informative than a distributional rank mean would be. Further, the standard error has not been adjusted and presently represents the 68 percent level of certainty. Data users should adjust this statistic to their own desired higher level of confidence.

Source: ISER North Slope Survey, 1977.

In examining the work adaptations of urban Native men, Jones similarly found that marriage was related to more stable work histories.[46] She suggests that marriage is important not only because it brings financial responsibilities but also because it provides an important source of emotional support to men in dealing with job stresses.

The other factor strongly related to Inupiat male labor force participation, particularly for heads of families, is preservice vocational training. Vocational education seems to be especially important to men during an economic downturn. During the winter of 1976 when CIP projects were cut back, Inupiat male heads of families who had vocational training were in the labor force almost twice as long as heads of families without such training . Even in periods of job abundance, such as the following summer construction boom, vocational education still remained important.

The positive relationship between vocational education and labor force participation is not necessarily causal. Inupiat men who are more oriented to the wage economy may seek out both vocational education and employment. However, vocational education may well contribute to higher labor force participation. It increases job skills that give men an advantage in the labor market, especially in times of job cut-back. Vocational training may also decrease voluntary withdrawals from the labor force by providing socialization into the routines and expectations of the workplace.

Among Inupiat women, the characteristic strongly related to labor force participation is English language preference.[47] Village women who preferred to respond to the survey interview in Inupiat were in the labor force on the average less than a month (Table 15). Village women who preferred to respond in English were in the labor force over eight times as much, an average of 6.7 months. Surprisingly, women living in the villages who spoke English were in the labor force almost as much as women living in Barrow, despite Barrow's greater job opportunities. If speaking English in the interview is fundamentally a measure of English language competency, the greater

[46] Dorothy M. Jones, *Urban Native Men and Women -Differences in Their Work Adaptations.* ISEGR Occasional Paper No. 12. University of Alaska: Institute of Social, Economic and Government Research, 1976.

[47] We are well aware that language preference is a complex issue and differs with the situation. The language measure used in this survey was whether the person preferred to answer interview questions in English or Inupiat. We view this measure primarily as an index of English skills. Since the interviewer was Inupiat, political issues involved in language choice were probably less salient.

Table 14

Relationship of Skill Levels and Other Individual Characteristics to the Labor Force Participation of North Slope Inupiat, 18-54, by Sex[a]: 1977

Characteristics	Male Labor Force Participation	Female Labor Force Participation
Education and Skills		
English Language Preference	.11	.47[b]
Educational Level	.20[c]	.31[b]
Preservice Vocational Training	.25[b]	.03[d]
Experience Working Outside Barrow	.12[c]	.28[b]
Personal Situation		
Head of Household	.19[c]	.03
Marital Status	.15[c]	.06
Age Level	.02	−.20[c]
Number of Dependents	.08	−.16[c]
Number of Children under 18	.06	−.19[c]
Availability of Transfer Payments to Household Members		
Old Age Programs	−.06	.02
Other Sources	−.02	−.15
Total Employment of Other Household Members	.04	.12
Living in Barrow	.10	.25[b]
Background Influences		
Father's Influence		
Whether Father Worked Primarily at a Wage Job	.10	.19[c]
Level of Education	.15	.09
Ethnicity	.05	−.09
Mother's Influence		
Whether Mother Worked for Wages	−.01	−.03
Level of Education	.19[c]	.02
Ethnicity	.10	−.02
Grew up in Barrow	.07	.18[c]
(Respondents)	(129)	(108)

[a]Spearman's *Rho* has been used to measure association since the variable "months in labor force" is not normally distributed.

[b]Significant difference at the 99 percent level of certainty.

[c]Significant difference at the 95 percent level of certainty.

[d]Few women have received preservice vocational training. This limitation reduces the possibility of a high correlation.

Source: ISER North Slope Survey, 1977.

relationship of language preference and labor force participation among Inupiat women is understandable. English skills are a prerequisite to the clerical, paraprofessional, and service jobs most women hold. Inupiat men, in contrast, are concentrated in blue-collar jobs where English language competency is less important.

The experience of having worked outside Barrow for three months or more was also related to higher female labor force participation, even with language preference controlled. Inupiat women with such experience were in the labor force an average of 3.1 months more than women who had never worked outside the North Slope (Table 15). Working at a paid job outside the North Slope may be a socializing experience which increases women's attachment to the labor force. Alternatively, women who are more oriented toward wage work in the first place may seek out employment both on and off the North Slope.

While other personal characteristics are statistically related to labor force participation among women, most of these relationships disappear when language preference is controlled. However, there remains a tendency for women with postsecondary education to have higher rates of labor force participation. Women with fewer children also tend to spend slightly more time in the labor force. While neither of these relationships reach statistical significance, the trend is clear and corresponds to national patterns of female labor force participation.[48]

Do demographic trends among the North Slope Inupiat suggest that those factors related to higher labor force participation are increasing and thus that labor force participation itself may increase? For women, this situation appears to be occurring. Family size is decreasing.[49] Postsecondary educational achievement is rising.[50] Young women are more likely to have work experience outside the North Slope, and more young women prefer to speak English. For men, the situation is not as straightforward. While vocational education is higher among the younger generation, the central factor, marriage rate, appears to have declined. In 1960, about 40 percent of Inupiat men 18 or over were unmarried, compared to 50 percent in 1977 (Table 10). As a comparison point, about 29 percent of U.S. white males in this age range were unmarried in 1977.[51] In sum, demographic shifts suggest that Inupiat female labor force participation is likely to increase in the future, but they do not have such an implication for men.

[48]U.S. Department of Commerce, Bureau of the Census. *A Statistical Portrait of Women in the United States.* Current Population Reports, Special Studies, No. 58, April 1976.

[49]Kruse, et al., *Energy Development and the North Slope Inupiat . . .*, Table 3-5.

[50]*Ibid.*, Table 3-7.

[51]"Marital Status and Living Arrangements, March 1978," *Current Population Reports*, Series P-20, No. 338, U.S. Bureau of the Census. Washington, D.C., Government Printing Office, 1979.

Occupational Structure of Inupiat Men and Women Since 1960

The North Slope Borough has created large numbers of government and construction jobs and has initiated strong local hire policies. The types of occupations held by Inupiat men and women reflect this particular job structure. Nonetheless, comparisons of North Slope Inupiat occupations with national patterns are useful in pointing out the types of skills this opportunity structure is developing in the Inupiat population. Inupiat men (80 percent) are concentrated in blue-collar work (Table 16). Over 30 percent of the male work force are unskilled laborers, a substantially greater proportion than white or black men nationally. Those Inupiat men who hold higher skilled positions are concentrated much more in crafts (30 percent) than in professional/managerial fields (12 percent). The proportion of Inupiat men in the skilled crafts is somewhat higher than among white men and significantly higher than among blacks.

In examining the occupational structure of Inupiat women, we have added "paraprofessional workers" as an additional category of white collar work. Such jobs as health aide and teacher aide are usually classified as service work. However, in isolated villages, where outside professionals often depend on local paraprofessionals to overcome cross-cultural problems, these positions require unusual judgment and professional skills. Rural health aides, for example, are trained to deliver medical services without a doctor or other professional immediately available. Paraprofessional work is a major occupational area for Inupiat women, and, in our view, this change more closely reflects the occupational situation in rural Alaska than conventional national categories.

Despite their recent entrance into the wage economy, Inupiat women (75 percent) are concentrated in white-collar work (Table 17). Seventeen percent of Inupiat women held professional and managerial positions in 1977, about as great a proportion as black women (18 percent) and almost as high a proportion as whites (23 percent). An additional 26 percent of the Inupiat female work force worked as paraprofessionals.

To determine whether the borough's local hire and advancement policies had led to individual occupational mobility, the survey asked the respondents, "What type of job, if any, did you spend most time on in 1970?" Occupational comparisons between 1970 and 1977 show no significant increase in skilled work for either men or women.[52]

The time interval between 1970 and 1977 is a short period in which to examine occupational change. Even between 1960 and 1977, however, only minor shifts occurred in the occupational structure of Inupiat men. The proportion of Inupiat men in professional/managerial positions increased from 2 percent in 1960 to 12 percent in 1977. The predom-

[52] These comparisons were also made for the same individual with similar results.

Table 15

Relationships of Residence, Language Preference, and Outside Work Experience to Labor Force Participation of North Slope Inupiat Females, 18-54, by Residence

	Statistical Characteristics				
	Average Months LFP	Standard Error	Number of Respondents	Mann-Whitney Statistic	Level of Significance
Barrow Residence					
Preference for English	7.3	+/- 0.74	(41)	33.5	n.s.
No Preference for English	–	–	(2)		
Non-Barrow Residence					
Preference for English	6.7	+/- 0.82	(40)	174.0	.0001
No Preference for English	0.8	+/- 0.41	(24)		
Preference for English					
Worked Outside Region three months or more	9.5	+/- 0.88	(64)	302	.02
Did not work outside region three months or more	6.4	+/- 0.64	(14)		

Source: ISER North Slope Survey, 1977.

Table 16

Occupations of North Slope Inupiat Males, 18 or Over, Compared to National Norms: 1977

Occupation	Ethnicity			Occupational Ratio	
	White	Black	Inupiat[a]	Inupiat/White	Inupiat/Black
Total White Collar	(44)	(27)	(19)	.43[b]	.70
Professional-Mgr.	31	17	12	.39[b]	.71
Paraprofessional[c]			1		
Clerical-Sales	13	10	6	.46[b]	.60
Total Blue Collar	(52)	(70)	(81)	1.56[b]	1.16[b]
Trades	22	16	29	1.32	1.81[b]
Operatives	17	24	14	.82	.58[b]
Laborers	6	14	31	5.17[b]	2.21[b]
Service	7	16	7	1.00	.44[b]
Total Farm	(4)	(3)	–	–	
Total Percent	100	100	100		
Total Males	(46,723)	(5,077)	(112)		

[a]Based on longest job held, October 1976-September 1977.

[b]Significant difference at the 95 percent level of certainty.

[c]Paraprofessionals include teacher's aides, nurse's aides, and other paramedical workers.

Source: U.S. Bureau of Labor Statistics, *Employment and Earnings*, January 1979; ISER North Slope Survey, 1977.

Table 17

Occupations of North Slope Inupiat Females, 18 or Over, Compared to National Norms: 1977

Occupation	Ethnicity			Occupational Ratio	
	White	Black	Inupiat[a]	Inupiat/White	Inupiat/Black
Total White Collar	(67)	(47)	(75)	1.12	1.60[b]
Professional-Mgr.	23	18	17	.74	.94
Paraprofessional[c]	2	2	26	13.00[b]	13.00[b]
Clerical-Sales	42	27	32	.76[b]	1.19
Total Blue Collar	(32)	(52)	(25)	.78	.48[b]
Trades	2	1	–	–	–
Operatives	12	16	4	.33[b]	.25
Laborers	1	1	1	1.00	1.00
Service	17	34	20	1.18	.59[b]
Total Farm	(1)	(1)	–	–	–
Total Percent	100	100	100		
Total Females	(30,644)	(4,321)	(60)		

[a]Based on longest job held, October 1976-September 1977.

[b]Significant difference at the 95 percent level of certainty.

[c]Paraprofessionals include teacher's aides, nurse's aides, and other paramedical workers.

Source: U.S. Bureau of Labor Statistics, *Employment and Earnings*, January 1979; ISER North Slope Survey, 1977.

inant occupational structure of Inupiat men was little different in 1977 than in 1960. Most Inupiat men are concentrated in blue collar work with about equal proportions in skilled and unskilled areas.

Between 1960 and 1977, however, major changes occurred in the occupational structure of Inupiat women. In 1960, most Inupiat women (81 percent) were service workers. In 1977, most were white collar workers (75 percent). In 1960, a negligible proportion of Inupiat women were professional workers. In 1977, 17 percent of the Inupiat female labor force were employed in professional/managerial positions.[53] Since the borough sometimes placed Inupiat employees in "trainee" positions in jobs for which they had not yet met conventional skill requirements, the skill level implied by these statistics may be overstated. What is surprising is the lack of pronounced occupational mobility, despite borough local-hire and advancement policies.

Inupiat Business Activity During the North Slope Borough Boom

An interesting aspect of the Inupiat occupational structure on the North Slope is the low level of self-employment in business. Despite the large amount of cash flowing into the North Slope economy and the increasing population,[54] fewer than 1 percent of the Inupiat surveyed were operating a business. A North Slope Borough staff member pointed out:

> There is little (Inupiat) entrepreneurship. We're trying to get people to go into business. The Whites are coming in now that there is money and they're making money. There's no movie theater in Barrow, just a few restaurants, a couple of stores. Almost everything is White-owned. There is a (——) business in the hands of a Native but he's trying to get the Borough to take it over. There's competition from the Borough system.

Cultural factors may in large part explain this situation. A study of Native entrepreneurship in Canada discusses some of the problems Natives face in operating a business:

> Community pressure (especially from relatives) to provide personal favors (use of equipment, free services, extending credit, etc.) is a serious problem, especially when compounded by strong family loyalties, a tradition of sharing, and a general lack of understanding of commercial activities (e.g. if a store manager has a store and warehouse full of merchandise, he must be very wealthy). . . .
>
> Community reaction—envy, hostility, ostracism, sometimes willful damage or physical violence—may create serious problems for an entrepreneur, sometimes killing the venture. There is a suspicion that the anticipation of such unfavorable community reactions may prevent many would-be entrepreneurs from establishing a business in the first place.[55]

Cultural factors, however, may not be the entire explanation. Inupiat entrepreneurship has occurred in earlier historical periods. According to Sonnenfeld, the increased cash circulating through Barrow during the ARCON boom (1946-1953) led to the "development of village businesses and of Eskimo businessmen."[56] In addition to the Native store, fostered by the Alaska Native Service:

> Other stores, also Native-run were established during the ARCON period to take their share of the increased village income. By 1951, there were five general stores, two coffee shops, one dance hall, two picture theaters, and one beauty shop.[57]

These businesses, Sonnenfeld claims, succeeded in capturing over two-thirds of the village income.[58]

Inupiat entrepreneurship also developed during the commercial whaling period at the end of the 19th century, as well as during the fur trapping boom of the 1920s. Some Inupiat whaling captains expanded their traditional activities, following the business model established by the white shore-station whalers. They invested in supplies to pay their crew, used warehouses to store the goods, supported as many as six whaling crews, and sold the product.[59] During the fur trapping boom, Sonnenfeld points out, "a few of the Eskimo had become entrepreneurs in their own right and could bid effectively for the Native trade."[60]

Studies of entrepreneurship in developing countries suggest that economic opportunity stimulates business growth despite apparent cultural constraints. Reviewing numerous studies documenting the abundance of entrepreneurial activities in societies considered unfavorable to business development, Leff notes that the problem of how to over-

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[53] Occupational comparisons between age groups result in small sample sizes. Nonetheless, it is of interest that 39 percent of Inupiat women in the 25-34 age group (n=25) were professional workers in 1977.

[54] Kruse, et al., *Energy Development and the North Slope Inupiat* . . ., Tables 3-1 and 4-1.

[55] John Beveridge and C. Roger Schindela, *Native Entrepreneurship in Northern Canada: An Examination of Alternative Approaches* (Saskatoon, Canada: University of Saskatchewan, Institute for Northern Studies, 1978), pp. 18-19.

[56] Sonnenfeld, *Changes in Subsistence* . . . , 1957, p. 557.

[57] *Ibid.*, p. 559.

[58] *Ibid.*, p. 559.

[59] *Ibid.*, p. 557.

[60] *Ibid.*, p. 323.

come socio-cultural rigidities in order to stimulate entrepreneurship has virtually disappeared from the professional literature.[61]

In explaining the low incidence of Inupiat entrepreneurship during the North Slope boom, factors other than cultural attitudes toward business may well be important. The Arctic Slope Regional Corporation and the village corporations established under the Alaska Native Land Claims Settlement Act have been active in establishing North Slope business enterprises, such as a fuel distributorship, light duty and heavy duty mechanical shops, and joint venture construction companies. The Native corporations may have pre-empted significant business opportunities. In addition, North Slope Inupiat with business and management skills are likely to find attractive opportunities in Borough and Native corporation employment which do not pose the risks of business ventures.

CONCLUSION

Through its local-hire program, the North Slope Borough has used its tax revenues to bring significant benefits to the general Inupiat population. The borough has provided at least some employment for over half the Inupiat adult population. Borough jobs have been especially important in helping to absorb the growing population of young Inupiat adults into the labor force. The borough has not succeeded in eliminating Inupiat unemployment, but the situation is far better than it would have been without the borough's formation. During the period of borough activity, cash income levels of the Inupiat population have substantially risen without increasing income inequity.

The North Slope Borough has not only emphasized local hire but also has sought to adapt work requirements to contemporary Inupiat lifestyles through such policies as subsistence leave. In this culturally adapted job situation, the labor force behavior of Inupiat women, particularly young women, parallels national patterns. Inupiat women are concentrated in white-collar work, and their rate of labor force participation approximates national norms. Since the 1960s, Inupiat women have surged into the work force and have increasingly entered skilled work. Demographic trends, such as rising female educational levels and smaller family size, suggest this pattern of high and rising female labor force participation will persist.

Inupiat men, in contrast, have developed a culturally different pattern of economic activity. North Slope Inupiat men, much more than men nationally, are concentrated in intermittent blue-collar work. Among younger as well as older men, labor force participation rates in the wage economy are substantially below national norms. However, Inupiat men in all age groups also participate substantially in the subsistence economy. Historical trends, age comparisons, demographic trends, and life-style preferences of male adults and high school students suggest that Inupiat men will maintain this dual pattern of economic activity in the future rather than shift strongly into the wage economy. The high-paying construction work which the borough offers makes it possible for men to follow this life-style preference without severe loss of cash income. However, the preference of many Inupiat men for a part-year work pattern also limits the borough's ability to use jobs as a mechanism for transferring oil revenues to the Inupiat population.

The Borough's Ability to Create Future Jobs

Current Inupiat employment on the North Slope is largely public employment, created by the North Slope Borough as it transforms tax revenues into jobs. As long as substantial Prudhoe Bay tax revenues continue, North Slope Inupiats can continue to enjoy high-paying, local employment harmonious with contemporary life styles. Current North Slope Borough revenue projections anticipate a stable property tax base through 1993.[62] Prudhoe Bay revenues are expected to persist at least through the turn of the century, and oil and gas development in other North Slope areas, such as the National Petroleum Reserve and the Outer Continental Shelf, may maintain the borough's tax base. However, oil revenues have not led to the growth of a diversified self-sustaining economy. Energy development has created serious dependence on the part of both Inupiat individuals and the borough government on an unstable, non-renewable resource.

If an economic downturn occurs, Inupiat men may be hurt more than Inupiat women. Events in the winter of 1977 illustrate this possibility. Due to an unresolved lawsuit about its level of taxing authority (since settled in the borough's favor), the borough reduced its spending, cutting back both on general government and on CIP projects. This economic downturn affected Inupiat men far more than Inupiat women. The level of employment of Inupiat women during the bad winter of 1976 was not significantly

[61] Nathaniel H. Leff, "Entrepreneurship and Economic Development: The Problem Revisited," *Journal of Economic Literature*, 17, 1979, pp. 46-64, 53.

[62] Attachment A to Appendix A, North Slope Borough CIP Ordinance 80-10B, Table A6, "Projection of Property Tax Base—North Slope Borough," p. A-15.

different from employment during the following summer boom. In contrast, Inupiat male employment dropped substantially during the downturn.

This situation occurred in 1977 because of the concentration of men in high-paying but temporary construction work. The women tend to hold lower-paying but more secure white-collar jobs. Their median wages are only about 60 percent of men's wages. However, over 50 percent of the women 18-54 had worked for 40 weeks or more at the same job compared to only 28 percent of men. Either having a white-collar job or working at a skilled blue-collar job significantly increases the employment of Inupiat men. Only about half the male work force, however, are in these categories.

In short, so long as borough revenues remain high, both Inupiat men and women are likely to enjoy good employment prospects. This favorable situation seems the most likely. However, if a dislocation does occur, women could be in a somewhat more advantageous position. Inupiat women are concentrated in clerical, paraprofessional, and other white-collar jobs which are common in other regions of rural Alaska. In other areas, these jobs are financed through Native nonprofit corporations, regional school districts, and state and federal agencies rather than a borough government.

Effects of the Economic Incentive Structure on Educational Achievement

In the current North Slope economy, Inupiat women, much more than men, have financial incentives for educational achievement. Inupiat women who obtain a high school education or above earn over one and a half times the weekly wages of women who are not high school graduates (Table 18). For men, completing high school makes no difference to weekly wages, given the high pay levels of unskilled construction work. Even in terms of annual earnings, completing high school results in only a 27-percent increase in men's earnings for the additional months worked. If unemployment compensation is taken into account, this income difference would decline further. Women with a high school education, in contrast, earned over twice as much annually as women who were not high school graduates.

These differences in economic incentives may be an important influence on male and female levels of educational motivation. Among Inupiat adults over 25, 8 percent of the women had a 4-year baccalaureate degree compared to only 1 percent of the men. In the youngest age group (18-24 years), it is the women who have slightly higher rates of educational achievement, more employment experience, and more experience either in school or working outside the North Slope.[63] In interpreting this trend, it is important to keep in mind the small sample in this age group and also the possibility of sex differences in the ages when men and women reach maturity. However, it is economically rational for a young man growing up on the North Slope (but not for a young woman) to minimize school and work in construction.

Jobs themselves also function as "schools," teaching not only information and skills but also attitudes and values.[64] In a study of Eskimo male and female work roles in Canada, McElroy points out that the white-collar jobs held by Eskimo women led to substantially more nonformal education than the blue-collar jobs held by Eskimo men.[65] Eskimo women's jobs tended to place them in close working relationships with professional supervisors who viewed their role explicitly as training Eskimo employees. Construction contractors, who employed Eskimo men, in contrast, saw their role as "just getting a job done, not trying to educate the Eskimos."[66] Similar processes may be occurring on the North Slope. Half of the North Slope leaders interviewed in a study of North Slope government were dissatisfied with the on-the-job training Inupiat construction workers received.[67] They saw the CIP's construction management system as failing to provide work skills that would make workers employable in other jobs. There was more satisfaction with the on-the-job training occurring in white-collar managerial and technical work.

An ideal of the North Slope Borough is to increase self-sufficiency by raising educational levels and thus reducing dependence on imported professionals and other skilled workers.[68] Yet, the current economic incentive structure may be thwarting attainment of this objective, especially for the large proportion of Inupiat men in blue-collar work. Two important goals of the North Slope Borough may intrinsically conflict—that of distributing high-paying

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[63] Kruse, et al., *Energy Development and the North Slope Inupiat . . .*, Table 3-6 and 3-8.

[64] The seminal work in this area has been done by Alex Inkeles, "Making Men Modern: On the Causes and Consequences of Individual Change in Six Developing Countries," *American Journal of Sociology*, 75:2 (1969), pp. 208-225.

[65] Ann McElroy, *Alternatives in Modernization: Styles and Strategies in the Acculturative Behavior of Baffin Island Inuit*, Vol. III (New Haven, Connecticut: Human Relations Area Files, 1977), p.

[66] *Ibid.*, p. 340.

[67] *North Slope Borough Government and Policy-Making*

[68] *Annual Overall Economic Development Program, Report and Projection*, North Slope Borough, July 1980.

Table 18

Effect of Education on Weekly and Annual Wages of North Slope Inupiat, 18-54, by Sex: 1977

Effects of Education	Statistical Characteristics			
	Median Wage	Number of Respondents	Mann-Whitney Statistic	Level of Significance
WEEKLY WAGE				
Females				
Less than High School	$ 190	(27)	224	.05
High School or Above	300	(23)		
Males				
Less than High School	499	(35)	632	n.s.
High School or Above	479	(38)		
ANNUAL WAGE				
Females				
Less than High School	7,606	(29)	250	.025
High School or Above	15,574	(25)		
Males				
Less than High School	12,587	(36)	586	.025
High School or Above	15,932	(44)		

Source: ISER North Slope Survey, 1977.

jobs to the general population versus creating economic incentives for educational achievement and skill development.

Increasing Importance of the Economic Role of Inupiat Women

In the traditional subsistence culture, men were the major economic providers. Women's food-gathering activities, such as fishing, berry picking, and hunting small animals, were primarily supplemental.[69] Inupiat women occasionally hunted large animals and participated in whaling, but these activities were unusual and remarked upon. Women were primarily responsible for the routine work of the household—scraping, chewing, and sewing skins; preparing the food; and caring for the children.

The development of the wage economy has substantially changed the economic role of Inupiat women. In the current North Slope Borough economy, women have become important economic providers for the household. Women's wages are not only a significant source of income for household expenses, but they help to finance household activities in the subsistence sector. Increased female wage employment in Inupiat households allows other household members to spend more time on subsistence activities (Table 19). This in turn results in greater contributions of subsistence foods to other Inupiat households. Women's work in the wage economy, in short, helps the household to maintain subsistence activity and prestige in the subsistence economy.

The North Slope experience suggests that Inupiat men and women may be choosing to adapt in somewhat different ways to majority culture institutions such as wage employment. Men and women are entering different types of occupational structures, which offer disparate educational incentives and work socialization experiences. Men have developed a complex pattern of activity in both the wage and subsistence economies. Women focus their economic effort more toward the wage economy, but their wages help the household to maintain effort in the subsistence economy. The North Slope Inupiat, especially the men, have not adopted the work behavior of the majority culture even when good job opportunities have been plentiful. Instead, Inupiat men and Inupiat households have developed a bicultural pattern of economic activity.

[69] Naomi M. Giffen, *The Roles of Men and Women in Eskimo Culture* (Chicago: The University of Chicago Press, 1980), p. 74.

Table 19

Relationships Between Employment and Household Subsistence
Among North Slope Inupiat Females, 18-54,
with English Language Preference

Household subsistence	Months Employed
Proportion of Subsistence Food Used	.16
Amount of Subsistence Food Given Away	.36*
Months Household Members Engaged in Subsistence	.29*
(Total Respondents)	(81)

*Significant at the 99 percent level of certainty.

Source: ISER North Slope Survey, 1977.

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PRICES AND INCOMES- ALASKA AND THE U.S., 1967-1980

This **Review** *discusses changes in living costs and incomes of Alaskans and other Americans in the 1970s, particularly the late 1970s, when fast-rising prices across the United States became a chief economic worry of government officials and average Americans. Alaskans were especially hard hit by rapid price increases at the end of the decade, because incomes of Alaskans grew little in the economic slowdown that followed construction of the trans-Alaska oil pipeline: each year from 1976 through 1979, Alaskans lost buying power as price increases far outpaced increases in incomes.*

Introduction

Alaska's living costs have historically been higher than those anywhere else in the United States,[1] and since about 1975, Alaska's per capita personal income has also been higher than that of any other state. There are also large price and income differences within Alaska itself. Although little information about costs in small, remote Alaska communities has ever been systematically collected, we do know that, in general, residents of Anchorage and other large communities in southcentral and southeastern Alaska pay the state's lowest prices and earn the highest incomes, while Alaskans in remote villages of northern and western Alaska face the highest prices and have lower incomes.

[1]In the October 1974 *Alaska Review of Business and Economic Conditions*, economists Arlon Tussing and Monica Thomas cite several possible causes for Alaska's high prices, including, but not limited to, transportation costs to and within Alaska; high costs of construction in the state; uncertainties and delays in shipping and construction due to the state's harsh climate; small size of markets in the state; seasonal fluctuations in production and sales in many Alaska industries; and rapid changes in industry and government activity which in the past have alternately created shortages and oversupplies of goods within the state.

In this *Review* we first examine changes in living costs in Anchorage as compared with changes in U.S. city average living costs during the past decade; Anchorage is the only Alaska community in which the federal Bureau of Labor Statistics recorded price changes throughout the 1970s.[2] Then, with the limited information available on living costs around the state, we look at price differences between urban and bush Alaska.

In the second part of this report we shift our attention from prices to incomes and discuss changes in personal incomes of Alaskans and other Americans in recent years. We examine how, in light of Alaska's higher living costs, the higher incomes of Alaskans actually compare with those of other Americans, and how the state's overall high per capita income figure masks the much lower per capita incomes of rural Alaskans. Finally, we turn to the distribution of personal income in Alaska compared with that in the balance of the United States, examining proportions of total income earned by high, medium, and low income groups in recent years.

Anchorage Living Costs vs. Costs in Other U.S. Cities

The federal Bureau of Labor Statistics publishes two measures of living cost changes in Anchorage and other U.S. cities: the consumer price indexes, which record price increases over time in individual communities and in the United States as a whole; and annual family budgets, which record differences in costs of maintaining three standards of living for a family of four in Anchorage and other American cities.

[2]The Bureau of Labor Statistics in 1979 did begin issuing Fairbanks consumer price indexes.

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FEATURE

Edited by Linda Leask

Prices and Incomes—Alaska and the U.S., 1967–1980

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The best-known measures of changes in living costs in the United States are the consumer price indexes,[3] which record changes in prices over time for a standard group of goods and services.[4] The U.S. city average indexes are based on national prices in 1967; these indexes are published monthly, recording how current national prices differ from 1967 prices. The Bureau of Labor Statistics also issues price indexes for regions and individual cities, including Anchorage, and, since 1979, Fairbanks.

The Anchorage consumer price indexes record changes since 1967 in Anchorage prices for essentially the same set of goods and services included in the national indexes. These price indexes do not reveal how much prices differ between Anchorage and other U.S. cities, but rather how much prices of the same items have changed in Anchorage and in other communities over time. Therefore, price indexes can not be compared as a measure of differences in living costs among communities. What the indexes do show is whether prices for the same set of goods are rising faster or slower in Anchorage than in other cities.

Another measure of changes in living costs that does show comparative costs in various U.S. locations is the Bureau of Labor Statistics' annual family budget series. These budgets show comparative costs of maintaining high, medium, and low standards of living for a hypothetical family of four in Anchorage and other U.S. cities. The budgets do not record how American families at different income levels actually spend their money, or how much they earn, but rather report the income necessary to buy the kinds of goods and services that the federal government has determined are needed to maintain the three standards of living in various regions of the country.[5]

[3]All consumer price index figures used in this *Review* are from the *Consumer Price Index for Urban Wage Earners and Clerical Workers*, which was the only index published until 1978. In 1978, the Bureau of Labor Statistics began publishing a second index, the *Consumer Price Index for All Urban Consumers*. The two indexes record changes in prices of goods and services purchased by two slightly different groups of urban residents.

[4]The Bureau of Labor Statistics decides what kinds and quantities of goods and services to include in its price indexes by conducting periodic nationwide surveys of how Americans spend their money. The price indexes record changes in prices of food, housing, clothing, transportation, medical care, entertainment, and personal care. Within these major categories, the bureau collects monthly or bimonthly price information on about 400 items from 15,000 stores and other businesses in eighty-five urban areas. The bureau recently estimated that in a year's time its price collectors gather 700,000 food prices, 70,000 rent prices, and about three-quarters of a million prices of other items.

[5]More information on how the family budgets are developed can be found in U.S. Bureau of Labor Statistics' *Three Standards of Living for an Urban Family of Four Persons*, Bulletin No. 1570-5 (Spring 1967).

Consumer Price Indexes

The costs of all consumer price index items except shelter increased about 145 percent in both Anchorage and in U.S. cities as a whole from 1967 through 1980; costs of buying and renting homes, however, increased far more nationwide than in Anchorage during those 13 years.

Table 1 shows the U.S. city average and Anchorage consumer price indexes for urban wage earners and clerical workers in November 1980. The U.S. city average index for all items stood at 256.4 that month —meaning that, with 1967 U.S. prices equalling 100, costs of all items included in the index increased nearly 160 percent from 1967 through 1980. Anchorage's index, based on 1967 Anchorage prices, stood at 232.0 in November 1980. It was, however, largely the staggering cost increases of housing in the U.S. as a whole between 1967 and 1980 that caused the national price index to exceed Anchorage's index in 1980.

Table 1

Anchorage and U.S. City Average Consumer Price Indexes for Urban Wage Earners and Clerical Workers, Selected Items, November 1980
(1967=100)

	Anchorage	U.S. City Average
All items	232.0	256.4
Food and beverages	270.0	258.7
Housing*	227.0	273.7
Shelter*	210.8	296.4
Apparel and upkeep	176.1	183.3
Transportation	241.3	259.7
Medical care	283.1	276.3
All items, less shelter	246.0	244.5

*Overall costs of "housing" include not only costs of buying and renting, but also costs of furnishings, insurance, and other, while "shelter" includes just costs of buying or renting homes.

Source: U.S. Bureau of Labor Statistics.

While costs of housing in Anchorage increased about 125 percent during that 13-year period, costs elsewhere in the country increased substantially more: overall costs of housing nationwide increased more than 170 percent from 1967 through 1980, with several components of total housing costs soaring nearly 200 percent. Because housing costs are such a large part of individual and family living expenses, increases in costs of housing weigh heavily in calculation of the overall increase in the consumer price indexes. Table 1 includes an "all items less shelter" index—a calculation of price increases among all index items except increases in costs of buying or renting homes. Excluding increases in shelter costs, overall prices of other items in Anchorage and in all U.S. cities increased about 145 percent over a 13-year span.

Aside from housing, individual index items whose costs increased fastest in the nation as a whole between 1967 and 1980 were medical care, food, and transportation. Similarly, in Anchorage, fastest-rising prices during that period were for medical care, which rose nearly 200 percent; food and beverages, which increased 170 percent; and transportation, which jumped about 140 percent.

Prices in Anchorage increased more than 10 percent in 1980, while prices in the U.S. as a whole increased about 13 percent--rates of inflation more than twice those of a decade earlier in both Anchorage and across the country.

Figure 1 shows the rates of increase of the Anchorage and U.S. city annual average price indexes from 1967 through 1980, as well as rates of increase of individual items within the indexes.

From 1967 through 1972, prices in urban areas across the country increased faster than those in Anchorage—but inflation was still relatively modest throughout the United States in the late 1960s and early 1970s. During that period, the U.S. city average index increased at annual rates of from 3 to about 5.5 percent, while the Anchorage index recorded annual increases of between 1.5 and 3.5 percent.

Economists believe the rate of inflation in Anchorage during those years was lower than in other urban areas because less expensive methods of transporting goods to Alaska were being developed, and Anchorage's economy was expanding, with introduction of larger, more cost-efficient businesses. Thus, during that period, while prices in Anchorage were substantially higher than in the U.S. as a whole, those price differences were narrowing somewhat.

At the same time, Anchorage was still importing a very large percentage of its merchandise from the lower 48, and Anchorage price changes were thus tied to national changes. Therefore, although Anchorage's prices were rising more slowly, they showed the same pattern of increase from year to year as did national prices; for example, when national prices increased more in 1969 than they had in 1968, Anchorage prices also increased more in 1969 than they had the previous year.

Then, in 1973, prices across the United States

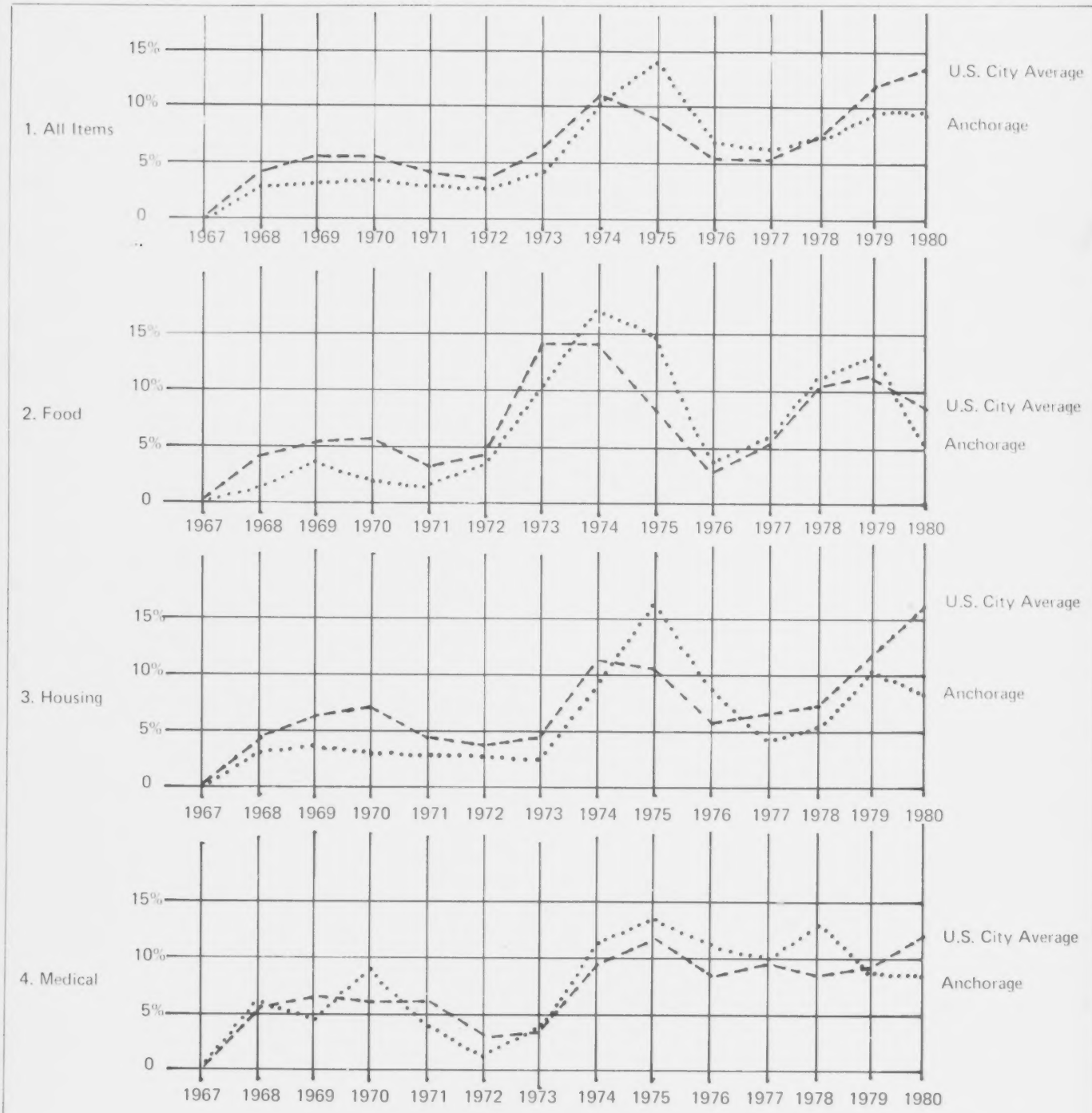

Figure 1. Annual Rates of Increase of Consumer Price Indexes, Anchorage and U.S. City Average, 1967-1980

Source: U. S. Bureau of Labor Statistics, U.S. city average Consumer Price Index and Anchorage Consumer Price Index, for urban wage earners and clerical workers, 1967-1980.

and in Anchorage began increasing at significantly higher rates than in the immediately preceding years; this increased national inflation was due in part to sharp increases in the price of imported oil. And in Anchorage in 1974 and 1975, prices rose even faster than the national rate, climbing nearly 15 percent in 1975.

Economists do not completely agree on why Anchorage's price increases in 1974-1975 were so much higher than the national average. There is general agreement, however, that during those years of pipeline construction, Anchorage's population grew quickly, and the resulting increased demand for goods and services, combined with high pipeline-related wages, played a large part in driving up Anchorage prices. Graph 3 of Figure 1, for instance, depicting the rate of increase of Anchorage housing prices, clearly shows the housing shortage that struck the city between 1974 and 1975, when Anchorage's population increased from about 153,000 to 178,000, and housing costs increased more than 16 percent.

By 1976, however, growth in costs of housing and other items began to slow down in Anchorage, and by the end of the decade the U.S. city average price index for all items was once again increasing faster than Anchorage's index. Anchorage's overall price index rose less than the national average in the late 1970s largely because housing costs, an important element of the total price index, increased less in Anchorage than elsewhere in the country.

These housing cost increases in Anchorage during that period were below the national average for several reasons. Builders reacted to the housing shortage of the mid-1970s by constructing more new homes and apartments than were actually needed in Anchorage. In the economic slowdown that followed pipeline construction, the city's population decreased, and demand for housing dropped.

By the end of the decade, another factor was influencing housing costs in Anchorage. In 1979, mortgage loan interest rates across the country began increasing sharply. To help Alaskans buy homes in the face of these high mortgage rates, the State of Alaska established programs offering home mortgage loans at several percentage points below the national average rate. In calculating housing cost increases in its price indexes, the Bureau of Labor Statistics incorporates current mortgage rates. Therefore, the lower interest rates available on mortgage loans in Alaska would hold down increases in housing costs as recorded in Anchorage's price index, while higher interest rates elsewhere would accelerate increases in housing costs as recorded by the U.S. city average price index.

The lower mortgage loan rates available in Alaska also had another effect on costs of housing in Anchorage in 1980. By 1980, because of the overbuilding of the mid-1970s and the high interest rates that discouraged construction, little new housing had been built in Anchorage for several years. Many Anchorage residents took advantage of the availability of lower-interest mortgage loans to buy houses, thereby increasing demand for existing houses. This caused the average price of houses in Anchorage to increase nearly 20 percent between 1980 and 1981. Thus, while the State of Alaska's low-interest home mortgage loan programs helped hold down overall costs of financing housing, as recorded by the Anchorage price index, the programs also helped drive up the prices of houses.

In summary, while prices of most items increased roughly the same amount in Anchorage and in other U.S. cities overall from 1967 through 1980, prices in Anchorage increased faster or slower than the national average at times during that period. Through the early 1970s, prices in Anchorage increased less than prices elsewhere; however, during the economic boom brought on by construction of the trans-Alaska pipeline in the mid-1970s, price inflation in Anchorage far exceeded the national rate. By 1980, prices in the balance of the country were once again rising faster than Anchorage prices, but inflation throughout the country was double-digit that year.

Annual Family Budgets

The most expensive family budget items in Anchorage relative to other U.S. cities in 1979 were housing, particularly rental housing; personal income taxes; and medical care.

Costs of maintaining low, moderate, and high standards of living for a family of four in Anchorage were significantly higher than U.S. average costs at all three levels in 1979, but relative costs were highest for low-income families.

As we noted earlier, these family budgets do not report what high, moderate, and low-income families in Anchorage and other cities actually spend to maintain the various standards of living. Rather, the budgets record comparative costs in various U.S. cities of buying standard groups of goods and services that the federal government has determined are needed to maintain different levels of living. Some Alaskan economists believe the costs of maintaining high, moderate, and low standards of living in Anchorage are in fact higher than the family budgets show, because the budgets do not include some kinds of costs that are higher for Alaskans than for other Americans. For example, the budgets do not include costs of air fares; most travel between Alaska and other states is of necessity by air, while residents of the lower 48 have the choice of driving interstate.

Still, despite the shortcomings of the annual

family budgets, the budget series is the only consistent measure of changes over time in costs of specific goods and services, and is therefore useful.

Table 2 shows the Bureau of Labor Statistics' 1979 budget costs for a hypothetical family of four at three standards of living in Anchorage and in the average U.S. city.[6] The bureau reported that buying a high standard of living for a family of four in the U.S. as a whole that year required about $30,000, while buying the same standard in Anchorage cost nearly $40,000, or 30 percent more. Buying a moderate standard of living in Anchorage in 1979 required about $27,000, or 33 percent more than buying the same standard in the average U.S. city. Maintaining a low standard of living for a family in Anchorage in 1979 was, however, the most expensive relative to U.S. average costs, requiring nearly $20,000—more than 50 percent above the costs of maintaining the same low standard in the U.S. as a whole.

[6]Because the Bureau of Labor Statistics issued these 1979 budgets before Alaska's state income tax was repealed, we have adjusted the bureau's figures for overall budget costs and personal income taxes to take into account the reduced taxes. See note b, Table 2.

Table 2

Anchorage and U.S. Urban Average Budgets for a Four-Person Family at Three Standards of Living, Autumn 1979

		1 High Standard of Living	2 Anchorage/ U.S. Ratio (%)	3 Intermediate Standard of Living	4 Anchorage/ U.S. Ratio (%)	5 Low Standard of Living	6 Anchorage/ U.S. Ratio (%)
Total Budget[a]	Anchorage	$39,730[b]	131	$27,359[b]	133	$19,385[b]	154
	U.S.	30,317		20,517		12,585	
Food	Anchorage	7,658	120	6,215	123	5,004	128
	U.S.	6,360		5,044		3,911	
Housing	Anchorage	10,351	148	7,143	155	4,849	201
	U.S.	6,971		4,594		2,409	
Transportation	Anchorage	2,754	114	2,331	126	1,738	173
	U.S.	2,411		1,851		1,004	
Clothing	Anchorage	1,915	106	1,399	113	1,018	118
	U.S.	1,804		1,235		866	
Medical Care	Anchorage	1,960	160	1,894	161	1,891	161
	U.S.	1,227		1,176		1,171	
Personal Income Taxes[c]	Anchorage	9,145[b]	144	4,184[b]	138	1,928[b]	187
	U.S.	6,357		3,031		1,032	

[a]Some budget categories have been omitted here; therefore, costs of categories included will not total overall budget costs.

[b]The overall budget costs and costs of personal income taxes presented here are our estimates, rather than the figures which appear in the Bureau of Labor Statistics' 1979 family budgets, because Alaska's state income tax was eliminated after the bureau issued these budgets. This elimination of state income tax reduced total income taxes for families at all standards of living, but federal income taxes of those families that itemized deductions would be increased somewhat, because the state tax had been allowed as a deduction against federal taxes. In estimating how much income taxes of families at all three standards of living would be reduced by elimination of the state income tax, we assumed: (1) that all families at the low standard take the standard deduction in filing their federal returns; (2) that 50 percent of families at the intermediate level, and all families at the high level, itemize deductions on their federal returns.

[c]Personal income tax category includes federal, state, and local tax payments; see note b above.

Source: U.S. Bureau of Labor Statistics.

The most expensive budget items in Anchorage at all three standards of living in 1979 were housing, personal income taxes, and medical care—and since housing and income taxes make up such large parts of family budgets, they are chiefly responsible for pushing Anchorage's costs of living above those of other cities. But it is at the low standard of living where those housing costs and income taxes are highest relative to the U.S. as a whole.

The higher relative cost of housing at the low standard exists because while *owning* homes in Anchorage in 1979 cost on average about 40 percent more than in the U.S. as a whole, *renting* houses in Anchor-age was twice as expensive as in the U.S. as a whole. In drawing up its family budgets, the Bureau of Labor Statistics assumes that all families at the low standard of living rent rather than own homes.

The second most expensive budget item in Anchorage is personal income taxes. Alaskans have historically paid high personal income taxes because the federal tax is progressive, taking ever-larger percentages of income as income increases, and until 1979, state residents also paid a progressive state income tax. In 1980, however, the state government repealed its income tax and refunded all state income taxes paid in 1979. Therefore, the Anchorage personal income tax payments shown in Table 2 include only federal taxes, while the U.S. average personal income tax payments are a combination of federal, state, and local income taxes.[7]

Despite the repeal of Alaska's state personal income tax in 1979, Anchorage families at all three standards of living still spent greater proportions of their budgets that year on federal income taxes alone than did their counterparts in the lower 48 states for a combination of federal, state, and local income taxes.

In 1979, the Anchorage family at the high standard of living paid about 24 percent of its budget in federal income taxes, while the family at the same standard in U.S. cities on the average devoted about 20 percent of its budget to a combination of federal, state, and local taxes. At the intermediate standard of living, the Anchorage family spent about 15 percent of its budget just on federal income taxes, while the family at the same standard in other U.S. cities paid less than 15 percent of its budget for federal, state, and local taxes. And at the low standard of living, the Anchorage family expended nearly 10 percent of its total budget for federal income taxes, while the family at the same standard in the U.S. as a whole spent about 8 percent of its budget for federal, state, and local taxes. Looked at another way, the Anchorage family at the low standard paid nearly twice as much in federal taxes in 1979 as the family at the same standard elsewhere in the U.S. paid in federal *and* state taxes, because the much higher income required to maintain a low standard of living in Anchorage is taxed at a higher rate by the federal government.

Figure 2 shows the relative difference between Anchorage and U.S. average family living costs at three standards of living from 1967 through 1979. Throughout that period, Anchorage's living costs at all three standards were substantially higher than those of the U.S. as a whole, but it was at the low standard that relative costs were consistently highest. The same two budget items—costs of rental housing and personal income taxes—that made the low standard of living so much more expensive to maintain in Anchorage than in other U.S. cities in 1979 have historically pushed up costs for low-income families in Anchorage.

In the late 1960s and early 1970s, when prices in the U.S. as a whole were increasing faster than Anchorage prices, the gaps between Anchorage and U.S. average living costs were narrowing at all three standards. Therefore, while it was still more expensive to live in Anchorage than in other American cities, by 1973 the price differences between Anchorage and other cities were substantially less than they had been in 1967. Then, in 1974, prices in Anchorage began rising faster than prices elsewhere in the U.S. As Figure 2 shows, living in Anchorage during 1975 and 1976 became more expensive relative to U.S. average costs for families at all standards of living. But low-income Anchorage families were hardest hit by high local inflation in the mid-1970s. During that period, costs of rental housing—already very high relative to the U.S. average—increased rapidly in the face of a housing shortage. By 1979, for reasons we discussed earlier, prices in Anchorage—particularly of housing—were once again increasing less rapidly than prices nationally, and thus the price gap between Anchorage and other U.S. cities had once again begun narrowing.

Costs of individual budget items increased at different rates between 1967 and 1979, and Table 3 shows which individual items became more or less expensive relative to U.S. average costs at all three standards of living between 1967 and 1979. Costs of food and personal income tax payments for Anchorage families at all three standards declined relative to

[7]While the repeal of the state income tax did reduce overall personal income taxes for Alaskans, those Alaskans who itemized deductions on their 1979 federal returns will have to pay federal taxes on their state tax refunds, because the state tax had been allowed as a deduction against federal taxes.

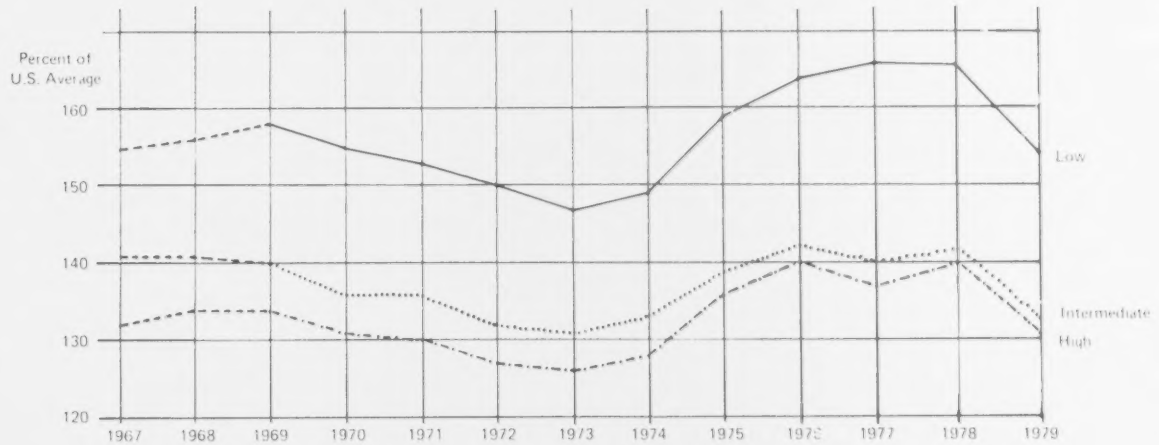

Figure 2. Ratios, Anchorage/U.S. Urban Average Costs of Budgets at Three Levels of Living for a Four-Person Family, 1967-1979
(U.S. Urban Average = 100)

Note: The 1979 ratios at all three levels have been adjusted, because elimination of Alaska's state income tax that year reduced overall budget costs for the hypothetical family of four in Anchorage, see note b, Table 2.

Source: U.S. Bureau of Labor Statistics, Indexes of Comparative Cost Based on Three Standards of Living for a Four-Person Family, 1967-1977, with the exception of the year 1968, for which no budgets were done. For this figure, probable ratios for 1968 were computed through the use of the Anchorage Consumer Index, 1968.

Table 3

Ratios of Anchorage/U.S. Average Costs at Three Standards of Living 1967 and 1979
(U.S. Average = 100)

	Low		Intermediate		High	
	1967	1979	1967	1979	1967	1979
Total budget costs	155	154	141	133	132	131
Food	132	128	126	123	124	120
Housing*	198	201	163	155	149	148
Shelter*	218	209	173	140	159	141
Clothing	113	118	111	113	103	106
Medical care	136	160	136	161	136	161
Social Security payments	126	165	110	118	110	105
Personal income taxes	248	187	191	138	165	144

*Overall costs of "housing" include not only costs of buying and renting, but also costs of furnishings, insurance, and other, while "shelter" includes just costs of buying or renting homes.

Source: U.S. Bureau of Labor Statistics, *Annual Family Budgets for a Four-Person Family at Three Standards of Living,* 1967 and 1979.

U.S. average costs between 1967 and 1979, while relative medical care in Anchorage increased at all income levels. Costs of buying homes in Anchorage declined relative to costs of buying homes in the U.S. as a whole during that 12-year period, and families at the moderate standard of living benefited most from this relative decline. On the other hand, rental housing in 1979 was still, as it had been in 1967, twice as expensive in Anchorage as in the U.S. as a whole. These continued high relative costs of rental housing kept overall budget costs of low-income families in Anchorage very high.

Anchorage Living Costs vs. Costs in Other Alaska Communities

Living costs in remote Alaska communities have historically been substantially higher than those in Anchorage, and bush Alaskans were particularly hard hit by rapid increases in the price of oil during the late 1970s.

Unlike in other states, where differences in urban and rural living costs are generally small, cost differences in communities across Alaska's 286,000 square miles are substantial. We have seen that Anchorage's living costs, as measured by the Bureau of Labor Statistics' annual family budgets, ranged in 1979 from about 30 to more than 50 percent above U.S. average costs for different standards of living. The federal government surveys living costs only in Anchorage and Fairbanks—and has done so in Fairbanks only since 1979.[8] Little information about living costs in Alaska's many small, remote communities has ever been systematically collected. What price information we do have shows that Anchorage residents, who pay prices substantially above the U.S. average, enjoy living costs far below those of bush Alaskans.

Historically, the difficulties involved in supplying goods and services to small, isolated villages with severe climates have driven costs for rural Alaskans far above those for urban Alaskans, and in the late 1970s, large increases in the price of oil hit pocketbooks of rural Alaskans in a number of ways.

Many villages can be reached only by air during much of the year, and rising fuel prices helped drive air fares and air freight rates up sharply in the late 1970s. Table 4 shows how air fares between Seattle and various Alaska locations increased between 1978 and 1980;[9] the table also shows increases in air freight rates between Alaska and Seattle during the same period. Passenger fares and air freight rates commonly increased as much as 50 percent during those 2 years; a round-trip ticket between Ft. Yukon and Seattle cost 57 percent more in 1980 than it had in 1978. Residents of McGrath paid 50 percent more to air freight 100 pounds from Seattle in 1980 than they had in 1978.

Another reason oil price increases weigh heavily on bush Alaskans is that most villages rely largely on oil for generating electricity. Table 5 shows the changing costs of 500 kilowatt hours of electricity in various Alaska communities between 1977 and 1979. Costs of electricity in rural Alaska had already been staggeringly high as compared with Anchorage costs in 1977, and these cost differences had become even greater by 1979. In Ft. Yukon and Egegik, for instance, 500 kilowatts of electricity in 1979 cost more than $125—five times the Anchorage cost. Cost increases of more than 40 percent were common in smaller communities between 1978 and 1980.

Many bush Alaskans, particularly those who live in areas where wood is scarce, rely on heating oil to warm their houses. A recent report by the Institute of Social and Economic Research estimated that between 1974 and 1978, the proportion of total income that the average rural household spent for heating oil and electricity increased from about 10.5 percent to 16.5 percent, and that the proportion of total income spent for those items by Native households increased from about 18 to nearly 30 percent during that period.[10] In Anchorage, many homes are heated by natural gas piped from the Kenai Peninsula south of Anchorage; the price of this natural gas increased relatively little during the late 1970s, partially because existing contracts between producers and Anchorage utility companies limited price increases.

Food Costs

In 1979 the University of Alaska's Cooperative Extension Service began making periodic cost surveys of the same market basket of foods in various Alaska communities.[11] These surveys do not record what

[8]Since 1979 the Bureau of Labor Statistics has issued Fairbanks consumer price indexes, but does not prepare annual family budgets for that community.

[9]See note on Table 4 for discussion of other factors which influence changes in passenger fares and air freight rates.

[10]William E. Nebesky, Oliver Scott Goldsmith, and Teresa M. Dignan, *The Impact of Rising Energy Costs on Rural Alaska*, University of Alaska, Institute of Social and Economic Research, prepared for Alaska Growth Policy Council, November 1980.

[11]From 1951 until 1977, the Cooperative Extension Service made quarterly surveys of costs of forty-five common food items in selected Alaska communities; this was discontinued in 1977, and the new surveys of family food costs began in 1979.

Table 4

Round-Trip Air Fares* and Air Freight Rates, Seattle to Alaska Locations, 1978 and 1980

	Round-Trip Air Fares, Alaska Location to Seattle			Air Freight Rates, 100 lbs., Seattle to Alaska Location		
	Nov. 1978	Dec. 1980	Percent Change	Nov. 1978	Dec. 1980	Percent Change
Anchorage	$246	$370	+51%	$36	$43	+19%
Kenai	281	370	+32	49	61	+25
Fairbanks	294	475	+62	36	48	+33
Ft. Yukon	362	569	+57	59	98	+66
McGrath	335	502	+50	44	66	+50
Juneau	207	298	+44	30	37	+23
Ketchikan	164	237	+46	16	35	+118
Bethel	395	474	+20	52	72	+38
St. Mary's	408	612	+50	52	72	+38
Dillingham	377	500	+33	49	70	+43
Cold Bay	559	605	+9	77	106	+38
Kotzebue	437	644	+47	59	60	–
Barrow	457	697	+53	63	84	+33
Nome	437	644	+47	59	60	–

*Coach class fares, when available.

Note: While increases in the cost of fuel certainly play a large part in increasing air fares and freight rates, other factors also influence those rates. Therefore, while many of the increases in passenger fares and freight rates between 1978 and 1980 were in the neighborhood of 50 percent, some increases were smaller. Increased competition among air carriers probably held down increases in passenger fares and freight rates to some larger Alaska communities in the late 1970s. Also, the more passengers or freight flying into or out of a community, the lower the costs to passengers and shippers. In remote communities with little passenger traffic but high volumes of freight, passenger fares could increase faster than freight rates.

Sources: Alaska Airlines, Wein Air Alaska, Reeve Aleutian Airways.

Alaskan families actually buy or how much they spend for food, but rather report comparative costs in various communities of buying a standard group of the kinds and quantities of foods that the federal government has determined are necessary to provide minimum nutrition for a family of four for a week.[12] Table 6 shows how costs for the same market basket of foods in several Alaska communities compared with each other and with U.S. average costs in September 1980.

Food costs in Anchorage, Juneau, and Fairbanks were lowest among the surveyed communities, but still about 30 percent above the U.S. average for the same group of foods. Communities with the highest food costs were Barrow and Point Hope, where food for a family of four cost about 83 percent more than in Anchorage, and 130 percent more than in the average U.S. city.

[12]Nor do the food cost surveys take into account how much and what kinds of food bush Alaskans obtain by hunting and fishing—a potentially important consideration in determining actual living expenses.

Personal income—Alaska and the U.S.

In this second half of the *Review*, we turn from looking at living costs to discussing personal incomes of Alaskans. We look at how those incomes have changed during the past 12 years and at how they actually compare with incomes of other Americans, given the state's higher living costs. Also, we discuss how personal income is distributed in Alaska and in the U.S. as a whole: what percentages of Alaskans and other Americans are found at various income levels, and at what shares of total personal income in the state and nation go to those at the various income levels.

In the upcoming discussion we use personal income statistics from two federal agencies. The Bureau of Economic Analysis prepares annual per capita personal income figures for the nation as a whole, for each of the states, and for regions within each state; the bureau derives these individual income figures essentially by dividing total personal income in a given area by the population of that area. The Internal Revenue Service annually publishes information on in-

comes as reported on individual and joint federal income tax returns. In our discussion, we use incomes as reported on joint federal returns as a proxy for family income.[13] Unfortunately, there is a lag of several years in statistics issued by both these agencies; we have used the most recent figures available.

Per Capita Personal Income, Alaska and the U.S.

From 1967 through 1979, Alaska's per capita personal income tripled, but during the last 3 years of that period, the state's per capita income grew only 10 percent; Alaskans lost buying power as price increases far outpaced income growth in the late 1970s.

In 1979 Alaska's per capita personal income stood at $11,252, as compared with the U.S. average individual income of $8,706 that year. Figure 3 shows how the past decade's per capita income gains in Alaska and the U.S. as a whole translate into actual increases in buying power, when adjusted for price increases. In the figure, annual increases in per capita personal incomes in the U.S. are reduced by annual increases in prices, as measured by the U.S. city average consumer price index. Annual increases in Alaska's per capita personal income are reduced by annual price increases recorded by the Anchorage consumer price index.[14]

The figure shows that from 1967 through 1972, incomes of Alaskans increased somewhat faster than prices increased; in 1969, for instance, per capita incomes rose about 4 percent more than prices increased. During the same period of the late 1960s and early 1970s, income gains among all Americans just kept pace with or stayed slightly ahead of price increases.

Then, in 1974, construction of the trans-Alaska pipeline began, with thousands of workers earning very high wages. Spurred by these high pipeline wages, the state's per capita income rose sharply. The Bureau of Economic Analysis reported that Alaska's per capita income increased nearly 30 percent be-

[13]Income reported on joint federal income tax returns is not entirely equivalent to family income. Families with very low incomes are not required to file tax returns, and thus information from just tax returns probably underestimates numbers of low-income families. Also, joint returns report only incomes of husbands and wives, whereas in some instances other family members might also earn income. In 1977 joint returns made up about 45 percent of all returns filed in Alaska and 51 percent of all returns filed nationwide.

[14]We do not know if prices throughout Alaska in fact increased at the same rate as Anchorage prices during the past decade, but the Anchorage consumer price index is the only measure of price change anywhere in Alaska over that entire period.

Table 5

Residential Electric Rates, Selected Alaska Communities, 1977 and 1979

Town	Residential Electric Bills, 500 kwh/mo. 1977	1979	Percent Increase 1977-1979	1979 Rates as Percentage of Anchorage (Anch = 100)
Anchorage	$17.31	$19.79	14%	100
Kenai	20.00	25.25	26	128
Fairbanks	26.85	42.50	58	215
Ft. Yukon	88.54	125.16	41	632
McGrath	77.55	113.45	46	573
Juneau	22.15	25.25	14	128
Ketchikan	24.69	26.20	6	132
Bethel	49.50	81.94	66	414
Dillingham	60.99	82.20	35	415
Egegik	102.50	127.30	24	643
Cold Bay	53.00	81.65	54	413
Kotzebue	70.88	95.18	34	481
Barrow	60.00	66.00	10	334

Source: Alaska Public Utilities Commission, *Eighth and Tenth Annual Reports to the Legislature*, years ending December 31, 1977 and December 31, 1979.

Table 6

Weekly Costs of Food for a Family of Four,* Selected Alaska Communities and U.S. Average, September 1980

Community	Dollar Costs	Ratio of Costs, Anchorage & other Alaska (Anch = 100)	Ratio of Costs, U.S. Average & Alaska (U.S. = 100)
U.S. Average	$69.20	78	100
Anchorage	88.44	100	128
Barrow	161.74	183	234
Bethel	130.87	148	189
Fairbanks	90.54	102	131
Ft. Yukon	151.08	170	218
Homer	117.31	133	170
Juneau	85.92	97	124
Kodiak	99.42	112	144
Kotzebue	141.43	160	204
Nome	131.14	148	190
Pt. Hope	163.61	185	236
Skagway	103.53	117	150
Valdez	97.70	110	141

*Costs of foods which would provide minimum nutrition, under U.S. government standards, for a family of four with elementary school children.

Source: Cooperative Extension Service, University of Alaska and U.S. Department of Agriculture, "Cost of Food at Home for a Week," September 1980.

tween 1974 and 1975. As Figure 3 shows, this translated into a real increase of almost 15 percent, when reduced by the substantial price increases that also occurred during that period. Some Alaskan economists believe, however, that while income gains in Alaska in 1975 were probably substantial, the Bureau of Economic Analysis may have overestimated those gains. Alaska's population was in flux in 1975, as thousands of actual and would-be pipeline workers came into the state; there was no firm estimate of how many persons actually considered themselves Alaska residents that year. In determining its per capita income figures, the bureau used a population figure substantially below that being used by the state government. Since individual income is derived by dividing total personal income by population, the bureau's use of a smaller population figure would result in a higher individual income figure.

Another way the bureau may have overestimated Alaska's 1975 per capita income can be found in its method of excluding pipeline wages earned by nonresidents. Many of the workers on the pipeline project were not Alaska residents, and the bureau estimated that 50 percent of 1975 pipeline construction wages went to nonresidents. Some pipeline-related wages were earned, however, not in construction but in transportation and business services; to the extent that some of these kinds of wages also went to nonresidents, personal incomes of Alaskans would have been overestimated.

Unlike in Alaska, per capita income gains of Americans in the U.S. as a whole in 1974 and 1975 were erased by the rapid price inflation brought on, at least in part, by increases in the price of imported oil.

By 1976, even before construction of the pipeline was complete, prices in Alaska had begun increasing faster than incomes, and Alaskans began losing buying power. Figure 3 shows that in each year from 1976 through 1979, prices increased more than incomes, and as a result real purchasing power of Alaskans was reduced. In 1979, for instance, prices—as measured by the Anchorage consumer price index—rose 6 percent more than did incomes of Alaskans. In the U.S. as a whole in the late 1970s, per capita incomes generally increased slightly faster than prices, but by 1979, price increases and income gains throughout the nation were just about equal.

Alaskans in all areas of the state shared to some extent in the income gains of the 1970s, but in 1978 per capita incomes in many rural areas remained, as they had been historically, as much as 50 percent below incomes in urban communities.

Table 7 shows per capita income changes in various regions of the state from 1969 through 1978—particularly changes between 1974 and 1976, the years of pipeline construction, and between 1976 and 1978, a period of economic slowdown.

In 1969, per capita personal incomes in remote communities like Nome and Bethel were less than half the individual incomes of Anchorage and Fairbanks; Bethel in 1969 had a per capita income of about $1,634, or 35 percent of Anchorage's $4,755 individual income that year. By 1978, Bethel's per capita income figure had more than tripled, reaching $5,716—but this figure was still only 45 percent of Anchorage's 1978 individual income of $11,839, and it also fell far short of the U.S. average per capita income of $7,840 that year.

In the past, the lower per capita incomes of bush Alaskans have largely been attributed to the scarcity of jobs in remote communities of the state. While it

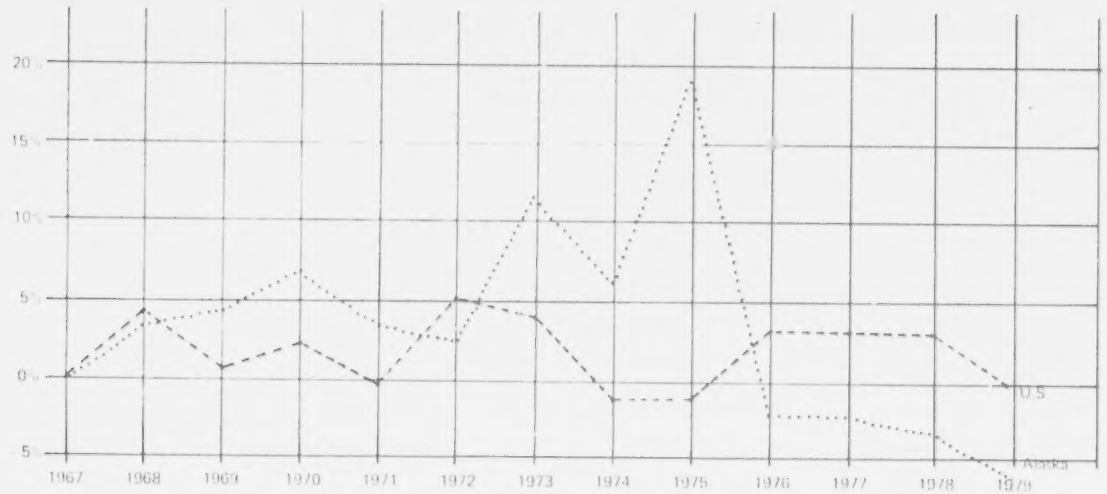

Figure 3. Real* Rate of Increase, Per Capita Personal Income, Alaska and the U.S. Average, 1967-1979

*Real rate of change calculated by deflating annual Alaska per capita incomes by Anchorage Consumer Price Index, 1967-1979, and deflating annual U.S. per capita income by U.S. urban average CPI, 1967-1979.

Source: U.S. Bureau of Economic Analysis.

Note: For 1974-1977, BEA estimated pipeline wages in construction, of which 50 percent were estimated to have been earned by non-residents. To the extent that pipeline wages were earned in closely related industries such as transportation and business services, and an exceptional percentage went to non-residents, personal incomes of Alaska residents were overestimated in those years. More important, there is substantial disagreement between the 1975 resident population figures published by they BEA and the State of Alaska; the BEA figure is significantly lower, and may have caused an unward bias for Alaska per capita income that year. The 1973 bulge in per capita income seems to have been partially caused by an unusually large payment under the Alaska Native Claims Settlement Act that year.

Table 7

Per Capita Personal Income, Selected Alaska Census Divisions, 1969–1978

Census Divisions	1969	1974	1976	1978	Percent Change 1974-1976	Percent Change 1976-1978
Alaska	$4,460	$7,138	$10,274	$10,849	+42%	+10%
Anchorage	4,755	7,402	10,579	11,839	+43	+12
Kenai-Cook Inlet	3,516	6,232	8,691	8,675	+39	0
Cordova-McCarthy	3,995	6,148	7,688	10,540	+25	+37
Valdez-Chitina-Whittier	3,591	8,466	21,196*	7,701	+150	-64
Kodiak	3,197	6,060	7,386	9,567	+22	+30
Fairbanks	4,476	7,838	13,193*	12,450	+68	-6
Juneau	5,826	9,296	11,009	13,074	+18	+19
Ketchikan	4,370	8,542	10,114	13,127	+18	+30
Bristol Bay	1,434	3,635	3,857	5,190	+6	+35
Bethel	1,634	4,300	4,503	5,716	+5	+27
Nome	2,575	5,095	6,579	7,025	+29	+7

*Incomes in Valdez and Fairbanks were very high in 1976 because much pipeline construction activity was centered in those two communities.

Source: U.S. Bureau of Economic Analysis.

is certainly true that there are few jobs in Alaska's small, isolated villages, it is also true that many of the jobs that do exist in rural Alaska require fewer skills—and therefore pay less—than many jobs in urban areas. There is also some evidence that the relatively few jobs that do require higher skills in rural areas pay less than comparable jobs in Alaska's cities.[15]

Table 7 also shows that benefits of pipeline construction were concentrated in a few communities: Fairbanks, headquarters for much pipeline activity; Valdez, the pipeline terminal; and Anchorage, the trade and service center of the state. Individual incomes in remote areas like Bristol Bay were virtually unchanged between 1974 and 1976.

Between 1976 and 1978, on the other hand, income dropped off sharply in Fairbanks and Valdez, but increased slightly in Anchorage, which was not as dependent on actual pipeline construction as Fairbanks and Valdez had been. Fishing communities around the state saw the biggest income gains between 1976 and 1978, when fish prices increased and salmon runs were strong; per capita income in the Bristol Bay area, for instance, increased 35 percent during that period. Other fishing towns like Ketchikan and Kodiak also saw strong income gains in a period when income growth in most of the state was slight.

When adjusted for Alaska's higher living costs, individual incomes of urban Alaskans are somewhat higher than the national average, and incomes of bush Alaskans fall far short of the national average.

Column 1 of Table 8 shows per capita income figures for various regions of Alaska and other states as reported by the Bureau of Economic Analysis in 1978. In column 2, we adjusted those income figures by differences in costs of living. We adjusted the per capita incomes of various U.S. locations by comparative cost ratios from the Bureau of Labor Statistics' 1978 intermediate level family budget, with U.S. city average costs equalling 100. We adjusted per capita incomes of all Alaska locations by the ratio of Anchorage to U.S. city average costs as reported in the 1978 intermediate family budget.[16] Since we have noted earlier that living costs in other Alaska communities are almost universally higher than in Anchorage, then adjusting incomes of other areas of the state by Anchorage's living costs is at best a partial measure of the effects of high living costs in those areas.

If the nominal per capita income of a given community in column 1 of Table 8 is reduced in column 2, then living costs in that community are higher than the U.S. average; this includes, of course, all Alaska communities, but also San Francisco, Chicago, and Washington, D.C. On the other hand, living costs in Atlanta, Houston, and most smaller cities around the country are lower than U.S. average costs, and therefore per capita incomes in those areas increase in column 2.

Column 3 shows how the adjusted per capita income figures compare with the U.S. average. In actual buying power, then, Alaska's 1978 per capita income was roughly equivalent to the U.S. average figure; adjusted per capita incomes of Anchorage, Fairbanks, and Juneau were above the national average, as were incomes of Chicago, San Francisco, Houston, and Washington, D.C. Therefore, while 1978 per capita incomes of some Alaskan cities, after being adjusted for higher living costs, were above the national average, incomes of other U.S. cities were comparable.

On the other hand, per capita incomes of a number of Alaska areas were substantially below the national average when adjusted for higher living costs. Kodiak's 1978 individual income, for instance, was about 86 percent of the national average, and Nome's only 64 percent. Adjusted incomes of smaller cities in the northeast and southern U.S. were also below the national average, but not as far below as those in some rural areas of Alaska.

Income Distribution, Alaska and the U.S.

In the preceding section, we looked at changes in individual income in Alaska and the U.S. as a whole; these per capita income figures are derived, as we noted earlier, by totalling personal income in a given area and dividing that total by the population of the area—and thus each individual is assigned an equal portion of total personal income. While per capita income figures are good measures of overall growth in personal income, they tell us nothing about the actual distribution of income among the population: what proportions of the population actually earn higher and lower incomes, and what shares of total income those at the various income levels bring home. In this section, we use information from joint federal income tax returns to approximate family income distribution in Alaska and in the U.S. as a whole in recent years.

[15] And, many of those skilled or professional workers—teachers, for instance—are only temporary residents of rural areas; thus, per capita incomes of permanent rural residents may be even lower than the Bureau of Economic Analysis' figures show.

[16] See note b, Table 8, for cost ratios for individual areas.

Table 8

Per Capita Personal Income, Selected Areas, U.S. and Alaska, 1978[a]

Areas	Actual 1978 per Capita Incomes	Incomes Adjusted by Intermediate Budget Ratios[b] (U.S. Avg = 100)	Adjusted Incomes as Percent of U.S. Average[c]
U.S. Average	$ 7,840	$ 7,840	100%
Alaska	10,849	7,694	98
Anchorage	11,839	8,396	107
Fairbanks	12,450	8,829	113
Juneau	13,074	9,272	118
Ketchikan	13,127	9,309	119
Chicago, Ill.	9,493	9,399	120
Newark, N.J.	9,487	8,178	104
San Francisco, Ca.	10,492	10,088	129
Washington, D.C.	10,259	9,499	121
Atlanta, Ga.	8,238	9,052	115
Houston, Tx.	9,398	10,215	130
Kenai-Cook Inlet	8,675	6,152	78
Kodiak	9,567	6,785	86
Nome	7,025	4,982	64
Bethel	5,716	4,054	51
Non-metropolitan, Northeast U.S.	6,523	6,458	82
Non-metropolitan, Northcentral U.S.	7,299	7,848	100
Non-metropolitan, Southern U.S.	5,425	6,308	81
Non-metropolitan, Western U.S.	7,900	8,494	108

[a]As of February 1981, the most recent per capita income figures available for individual cities, counties, and census divisions were 1978 figures.

[b]The per capita income figures presented in column 2 are our adjusted figures, based on living cost differences in various U.S. locations as recorded in the Bureau of Labor Statistics' *Autumn 1978 Budget for a Family of Four* at the intermediate standard of living. These family budgets present living cost ratios, with U.S. average costs equalling 100 and costs in individual locations measured against that standard. The ratios we used in adjusting the figures in column 1 are: all Alaska locations, 141—the Anchorage ratio, since Anchorage is the only Alaska community included in the budget series; Chicago, 101; Newark, 116; San Francisco, 104; Washington, D.C., 108; Atlanta, 91; Houston, 92; non-metropolitan Northeast, 100; non-metropolitan Northcentral, 93; non-metropolitan Southern, 86; non-metropolitan Western, 93. Thus, for example, Newark's per capita income of $9,487 in column 1 becomes $8,178 in column 2, since living costs in Newark are 16 percent higher than the U.S. average.

[c]Column 3 shows how per capita incomes, after being adjusted for regional living cost differences, rank against the 1978 U.S. average per capita income. For example, Alaska's 1978 per capita income, when adjusted as described in note b, would be roughly equal to the U.S. average figure.

Sources: U.S. Bureau of Labor Statistics; U.S. Bureau of Economic Analysis.

Changes in Family Income, 1967-1977

In 1977 there was a smaller proportion of families in Alaska with very low incomes than there had been in 1967, and a much larger proportion of families with high incomes.

Figure 4 shows cumulative distributions of joint federal income tax returns, by gross income, in Alaska and in the U.S. as a whole in 1967 and 1977. In order to assess real changes in buying power during that period, we converted the 1977 figures into 1967 dollars. We deflated Alaska's 1977 income figures by

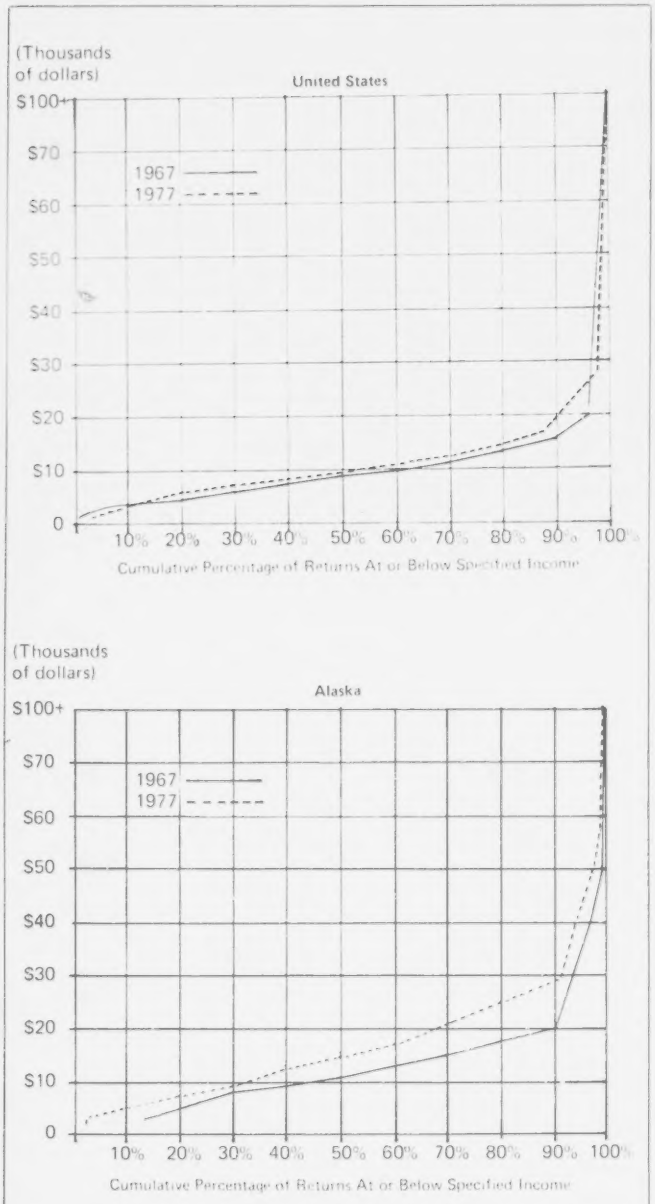

Figure 4. Cumulative Distributions of U.S. and Alaska Joint Income Tax Returns, by Income,[a] 1967 and 1977 (in 1967 dollars)[b]

[a]Adjusted gross income, which includes taxable personal income from all sources, minus certain business and other deductions.

[b]To measure real changes in purchasing power of Alaskans and other Americans between 1967 and 1977, we deflated Alaska 1977 incomes by the 1977 annual average Anchorage Consumer Price Index of 174, and U.S. incomes by the 1977 U.S. city average index of 181 (with a base of 1967 = 100).

Source: U.S. Department of Commerce, Internal Revenue Service, *Statistics of Income: Individual Income Tax Returns*, 1967 and 1977.

Anchorage's annual average consumer price index for 1977, and deflated the national 1977 figures by the U.S. annual average consumer price index for 1977. Thus, we can compare changes in real income in Alaska between 1967 and 1977, and changes in the U.S. as a whole during that decade, but we can't use Figure 4 to measure differences in buying power of Alaskans and other Americans, because the income figures are not adjusted for Alaska's higher living costs.

Using income as reported on joint federal tax returns as a proxy for family income, we can see in Figure 4 that real incomes—incomes adjusted by price increases—of Alaskan families at all income levels grew between 1967 and 1977, but that income gains were largest at higher incomes. Thus, in 1977 there there were a smaller percentage of families in Alaska at very low incomes, and substantially more families at high incomes than there had been in 1967.

To read the graphs in Figure 4, choose an income level on the vertical axis and read across to find the percentage of taxpayers at or below that income level in 1967 and in 1977. For example, on the Alaska graph, reading across from $8,000 on the vertical axis shows us that in 1967, 30 percent of joint returns in Alaska reported incomes of $8,000 or less, compared with about 25 percent in 1977. Thus, between 1967 and 1977, the proportion of families in Alaska with incomes at or below $8,000 (in 1967 dollars) dropped slightly, from 30 to 25 percent.

On the other hand, the proportion of Alaskan families at higher incomes increased substantially during the same decade; in 1967, only 10 percent of joint returns reported incomes of more than $20,000, while in 1977 about 30 percent of returns reported incomes above $20,000 (in 1967 dollars).

In the United States as a whole during the same period, family incomes at lower levels increased at about the same pace that prices increased, and thus the proportion of poor families remained about the same in 1977 as it had been in 1967. For example, in both 1967 and 1977, about 20 percent of joint U.S. returns reported incomes at or below $5,000 (in 1967 dollars). At higher levels, family income grew slightly faster than prices increased, and the proportion of American families with higher incomes increased somewhat between 1967 and 1977. In 1967, for instance, about 10 percent of returns reported incomes of more than $15,000, while in 1977 about 20 percent of returns were above that level (in 1967 dollars).

Thus, between 1967 and 1977, incomes of Alaskan families at all levels—but particularly those at higher levels—increased faster than prices. However,

as we noted in the discussion of per capita incomes, Alaskans lost buying power in the late 1970s as prices increased faster than incomes, while in the rest of the country gains in per capita income kept slightly ahead of price inflation. So, if we could look at real changes in family income in Alaska and in the U.S. as a whole between 1977 and 1979, we might see growth in incomes of Alaskan families fall behind price increases.[17]

Also, in calculating gains in real income between 1967 and 1977, we deflated Alaska's 1977 income figures by price increases as recorded in the Anchorage consumer price index. We do not know whether prices increased faster outside Anchorage than in Anchorage during that period, but there is evidence that prices of at least some goods increased faster outside Anchorage in the late 1970s. Thus, in Figure 4, we may have overestimated real income gains of Alaskans outside Anchorage.

While the graphs in Figure 4 show cumulative percentages of taxpayers at or below given income levels, Figure 5 shows percentages of Alaskan and other American families at individual income intervals in 1977. For example, roughly 10 percent of Alaskan joint returns reported incomes between $24 and $28 thousand in 1977. Figure 5 also shows the different *patterns* of income distribution in Alaska and in the balance of the country in 1977; the two parts of the figure cannot be directly compared as a measure of proportions of Alaskan and other American families at high, moderate, and low standards of living, because the income statistics are not adjusted for Alaska's higher living costs. After we look at differences in patterns of income distribution as shown in Figure 5, we then examine proportions of Alaskan families effectively at various standards of living, given the state's high living costs.

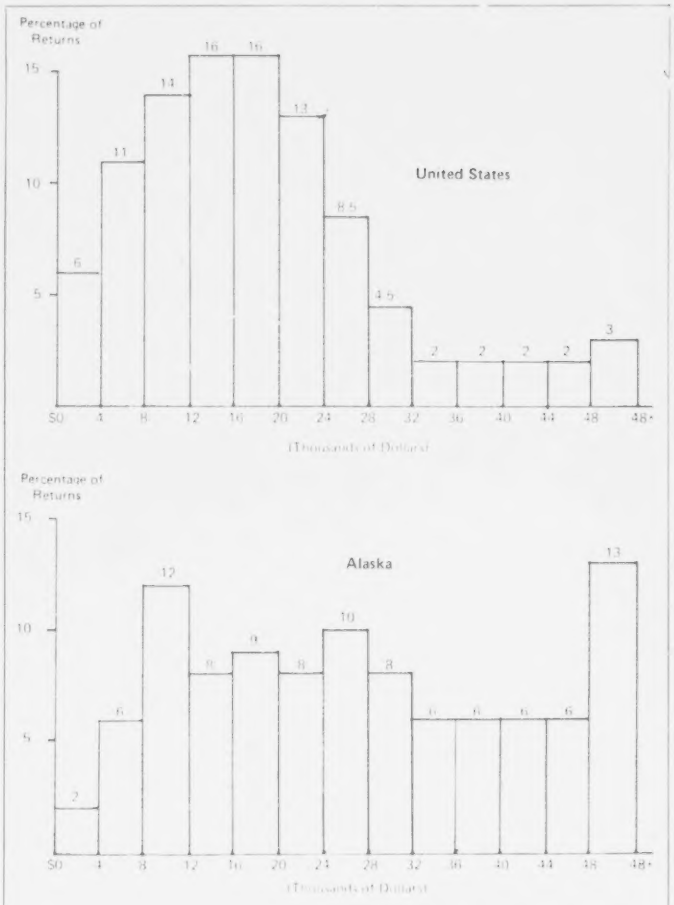

Figure 5. 1977 Distribution of Joint Income Tax Returns, Alaska and U.S., by Income* Categories

*Adjusted gross income, which includes taxable personal income from all sources, minus certain business and other deductions.

Source: U.S. Department of Income, Internal Revenue Service, *Statistics of Income, Individual Income Tax Returns, 1977.*

Most joint tax returns throughout the United States in 1977 reported incomes at the low and middle ranges of the income spectrum, while in Alaska, large numbers of returns reported incomes at both the low and high ends of the spectrum, with no concentration in the middle range.

In both Alaska and the U.S. as a whole in 1977, more than 90 percent of joint federal tax returns reported incomes between $0 and $50,000. But in the entire United States that year, nearly three out of four returns were concentrated in the low and middle ranges of the income spectrum, reporting incomes between $4,000 and $25,000, with the largest proportion of those falling around $16,000. In Alaska, on the other hand, large numbers of returns reported incomes at both the high and low ends of the income spectrum with no concentration of incomes in the middle range. Roughly equal proportions of Alaska joint returns reported incomes of $12,000 or less and incomes of $45,000 or more that year.

We do not believe that the proportion of Alaskan families with higher incomes was significantly increased in 1977 because of high wages paid workers on the trans-Alaska pipeline project; that project was largely completed at the end of 1976, and our information on distribution of 1978 joint income tax returns in Alaska shows roughly the same propor-

[17] Information from Alaska's 1978 and 1979 Federal income tax returns was not available in early 1981.

[18] See Alaska Department of Revenue, *Individual Income Tax Paid by Residents in 1977 and 1978 by Filing Status*, June 1980.

tion of families at high incomes.[18] Therefore, we believe that Figure 5 is a fair representation of the difference in patterns of family income distribution in Alaska and in the U.S. as a whole in the late 1970s. Alaska at the end of the decade had many low-income families, many high-income famiies, and relatively few families in the middle-income range. In the country as a whole, however, most families had incomes around the middle of the spectrum.

As we noted earlier, the 1977 Alaska income distributions in Figure 5 are not adjusted for the state's high living costs, and as a result, do not give us a true indication of Alaska families' buying power. As an indication of what standard of living Alaskan families at various income levels could actually buy with their money, we can use the Bureau of Labor Statistics' 1977 calculations of incomes necessary for families in Anchorage and in U.S. cities on the average to buy low, moderate, and high standards of living.

Larger proportions of Alaskan families were at both the low and high standards of living in 1977 than were families in the U.S. as a whole. Relatively few Alaskan families were at the moderate standard.

About 30 percent of Alaska joint tax returns reported incomes at or below the $17,000 that the Bureau of Labor Statistics estimated was necessary to buy a low standard of living in Anchorage for a family of four in 1977. In the U.S. as a whole, about 25 percent of joint returns reported incomes below the $10,000 the bureau estimated was needed to buy a low standard of living for a family in an average U.S. city. On the other hand, nearly 40 percent of Alaska's 1977 joint returns reported incomes at or above the $35,000 that the federal government estimated would buy a high standard of living for a family of four in Anchorage. Nationwide, about 20 percent of joint returns reported incomes of at least the $25,000 that the government estimated was needed to buy a high standard of living in the average U.S. city in 1977.

Looked at another way, in 1977 only about 30 percent of Alaska families had incomes somewhere between those needed to buy low and high standards of living as measured by the Bureau of Labor Statistics' Anchorage family budgets. In the U.S. as a whole, about 55 percent of family incomes fell between those needed for maintaining low and high standards of living. If we remember that family living costs in Alaska communities outside Anchorage are higher than costs in Anchorage, the above figures probably underestimate the number of Alaskan families at a low standard of living in 1977.

Above we looked at proportions of Alaskan and other American families at various income levels in 1977; now we will talk briefly about how total personal income reported on all joint returns in Alaska and in the nation was divided among those at low, middle, and high incomes in 1977.

Historically in the United States, families with low incomes have earned a disproportionately small share of total income earned by all families, while the relatively few wealthy families have garnered a large share. During the past 50 years, low-income families have slightly increased their share of total family income, but families in the middle-income range gained most during the past decades; thus, in 1970, middle-income families earned more of the total income, and high-income families less, than had been true in 1930.[19] Despite these shifts, the historic pattern of income distribution still holds, with wealthy families getting a disproportionately large share of total income.

Of all joint income tax returns filed in the United States in 1977, the 40 percent reporting the lowest incomes comprised only 16 percent of total income. The middle 50 percent of returns reported 51 percent of total income, while the 10 percent of returns with highest incomes accounted for 33 percent of total income reported. Thus, the top 10 percent of returns reported more than twice the income of the bottom 40 percent.

Forty percent of joint returns filed by Alaskans in 1977 reported incomes of $20,000 or less, and those returns accounted for only 14 percent of total income. Fifty percent of joint returns reported incomes between $20,000 and $50,000, and those returns accounted for 60 percent of total income. The 10 percent of returns reporting incomes of more than $50,000 accounted for 26 percent of total income. Thus, the top 10 percent of Alaska joint returns reported nearly twice the income of the bottom 40 percent.

In both Alaska and the U.S. as a whole, then, the 40 percent of families with lowest incomes earned a small part of the total income in 1977, but low-income families in Alaska earned proportionately less than low-income families nationwide. Middle-income families in Alaska, however, reported a larger share of total Alaska income than their U.S. counterparts earned of all U.S. family income. Finally, those families with highest incomes in both Alaska and the country as a whole got a substantial share of total income, but that share in Alaska was smaller because middle-income Alaskan families earned more.

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[19]Thomas R. Dye and L. Harmon Zeigler, *The Irony of Democracy: An Uncommon Introduction to American Politics* (North Scituate, Massachusetts: Duxbury Press, 1975), page 117.

Conclusions

Alaska's price changes generally followed the national trend throughout the decade, but local economic conditions did affect price changes in the state, the most notable example being the 1975-1976 price surge triggered by construction of the trans-Alaska oil pipeline.

This experience suggests that the state, in planning a series of large infrastructure projects such as dams and ports, could prevent further increases in inflationary pressures, if it could avoid building its projects at the same time that large-scale private projects, such as the gas pipeline, are under construction.

The data reported above also illustrate that prices of all goods and services do not change in unison, but rather respond individually to various market forces that affect a particular good or service. In 1976, for instance, Alaska's food prices increased approximately 4 percent, while the price of medical services grew approximately 12 percent. Gaining a better understanding of the forces underlying such price changes in Alaska could provide state policymakers with better insight on how their policy actions may affect price changes. For example, prior to the state's injection of hundreds of millions of state dollars into a local home mortgage program and its subsidization of interest rates several points below the market price, Anchorage home mortgage payments had fallen from 70 percent above the national average in 1967 to approximately 40 percent above at the time the mortgage program started in 1980. It would be useful to know what effect this program has had on the current price of housing. In contrast to the cost of home ownership, costs of Anchorage rental housing from 1967 through 1979 remained at twice the national average.

Costs of supporting high and low standards of living in Anchorage in 1979 were roughly as far above U.S. average costs as they had been in 1967. Despite the state's repeal of personal income taxes, the costs of maintaining a low standard of living remained at 154 percent of the U.S. average,[20] while the cost of a high standard of living in Alaska remained at 131 percent of the national average. Only the cost of maintaining a moderate standard of living declined, from 141 percent of the national average in 1967 to 133 percent in 1979.

Few Alaskans are likely to concur with BLS's implicit assumption that $40,000 bought a high standard of living for a family of four in Alaska in 1979. Nonetheless, the BLS series does enable us to monitor the effects that inflation has on the various income groups and unequivocally demonstrates that those hardest hit by inflation are Alaska's low-income families and individuals, who spend far more for housing and taxes than do other low-income Americans.

Although time series data on prices in rural Alaska are almost nonexistent, what limited data is available suggests that the price gap between urban and rural Alaska actually widened over the past decade. Villages and towns relying on fuel oil for home heating and electricity have been particularly hit hard by the dramatic tenfold increase in the price of crude oil over the past decade.

Similarly, because incomes are low in much of rural Alaska, and low-income groups are the most adversely affected by inflation, the cost of living in rural Alaska appeared to be more expensive relative to Anchorage in 1979 than it was in 1970. However, until the State of Alaska systematically compiles data on living costs in rural Alaska, cost-of-living differences within Alaska will continue to be a matter of conjecture and debate.

Alaskans fared well by earning more real income by the end of the decade than they had at the beginning, with the greatest gains occurring between 1974 and 1976. However, the decade ended with a whimper rather than a bang, largely because real per capita income declined for the last 3 years. The overall gains for the decade were experienced by both rural and urban residents, but these income gains were anything but even throughout the decade. For example, following completion of the oil pipeline, incomes that had been propped up by high wages and an influx of temporary workers dropped precipitously in the affected areas.

Because the income data used in our analysis is based on the place where the income was earned, we were unable to eliminate the incomes of seasonal workers who may not have been residents. However, once it is published, the 1980 census data will enable analysts to examine income gains by place of residence and will produce different results for those regions that have large numbers of itinerant or seasonal workers.

While the absolute gap in actual dollars earned between rural and urban districts widened, the relative differences narrowed during the past decade. For example, in 1969 the per capita income of the Bristol Bay census division was only 26 percent of the Juneau division; by the end of 1978, this had increased to 40 percent.

Despite the income gains over the past decade,

[20]For low-income families, the decrease in state taxes was largely offset by the increase in social security payments and the persistently high cost of renting.

Alaska's real per capita income in 1978 (using BLS's intermediate budget ratios as a price deflator) was 98 percent of the national average and well below the averages for such communities as Washington, D.C.; Houston; or San Francisco. Thus, while Alaskans' incomes have improved relative to the U.S. average, the state's real per capita income, when properly deflated for the higher cost of living, remained slightly below the national average in 1978—a fact quite contrary to many perceptions.

And finally, while all segments of Alaska's society have benefited from the state's economic development over the past two decades, these benefits have not been evenly distributed. In examining the distribution of incomes in Alaska for 1977, we found that there were proportionately fewer Alaska joint tax returns reporting low incomes in 1977 than there had been in 1967, but still a higher proportion of Alaskan families at low incomes than was true nationwide. In contrast, there was a substantially greater proportion of Alaskan taxpayers earning higher incomes in 1977 than in 1967—and the proportion of Alaskans with high incomes in 1977 was greater than the U.S. average. Thus, Alaska in 1977 had a larger percentage of its taxpayers in low- and high-income categories than did the U.S., and, correspondingly fewer middle-income taxpayers. The issue of how this pattern of income distribution will be affected by future developments and subsequent state expenditures and investments is one about which little is presently known or understood, but it is an issue that is likely to become increasingly volatile during the decade of the eighties.

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